"OFFICIAL JOURNAL OF THE UNITED STATES ATV SOCIETY"

AMATEUR TELEVISION MAGAZINE™

JUNE 1984 VOL. 14 NO. 6 PUBLISHED MONTHLY "OUR 17TH YEAR" $2.00

DAYTON 84 DAZZLES WITH NEW ATV/SSTV/FAX SYSTEMS!

NEW SSTV/RTTY/CW SYSTEMS RELEASED FOR COMMODORE 64 COMPUTERS
ROBOT RESEARCH, INC. DISPLAYS NEW 1200C HI-RES. SSTV
CONCERN EXPRESSED OVER ICOM 1200 MHZ. BAND PLAN VIOLATION

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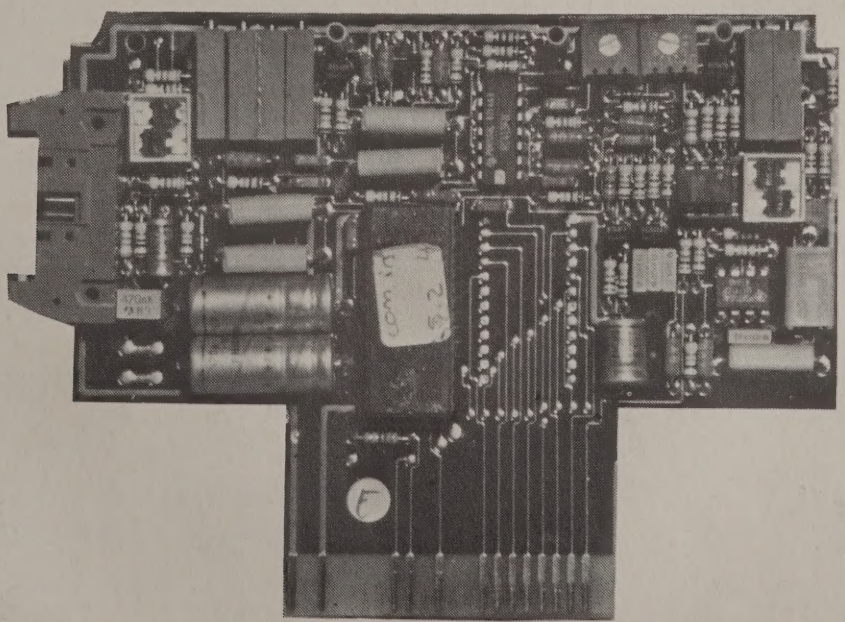

New "COM-IN 64" Interface Board for CW-RTTY-AMTOR-SSTV and MODEM Operations (Plus Lots More) for Commodore 64 Computer Systems! (photo by VE6COD)

State of the art

by K.V.G.

9 MHz CRYSTAL FILTERS

MODEL	Appli-cation	Band-width	Poles	Price
XF-9A	SSB	2.4 kHz	5	$53.15
XF-9B	SSB	2.4 kHz	8	72.05
XF-9B-01	LSB	2.4 kHz	8	95.90
XF-9B-02	USB	2.4 kHz	8	95.90
XF-9B-10	SSB	2.4 kHz	10	125.65
XF-9C	AM	3.75 kHz	8	77.40
XF-9D	AM	5.0 kHz	8	77.40
XF-9E	FM	12.0 kHz	8	77.40
XF-9M	CW	500 Hz	4	54.10
XF-9NB	CW	500 Hz	8	95.90
XF-9P	CW	250 Hz	8	131.20
XF910	IF noise	15 kHz	2	17.15

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XF107-A	NBFM	12 kHz	8	$67.30
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XM107-SO4	FM	14 kHz	4	30.15

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Options: Low NF (2.0 dB max., 1.25 dB max.), other bands & IF's available

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1296 MHz	1.3 W output, 2M in	MMt1296-144	$339.95
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	30 W output	MML144-30-LS	109.95
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All models include VOX T/R switching.
"L" models 1 or 3W drive, others 10W drive.

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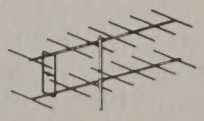

420-450 MHz MULTIBEAMS

48 Element	70/MBM48	15.7 dBd	(See Special)	$75.75
88 Element	70/MBM88	18.5 dBd		105.50

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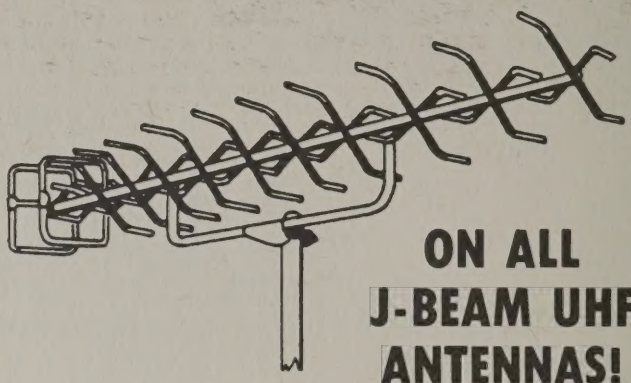
1650-1750 MHz 28 loops 1691-LY 20 dBi	$59.75

Order Loop-Yagi connector extra: Type N $14.95, SMA $5.95

PRICE REDUCTIONS



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AMATEUR TELEVISION MAGAZINE™

INTERNATIONAL

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"For the specialized communication radio amateur"

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PUBLISHER/EDITOR
Michael W. Stone WBOQCD

STAFF

Production
Mike Stone WBOQCD
Pat Mussig
Paul Mooney
Ray & Carolyn Houston

Mailing Service
Jim O'Brien
Jill Carter
Danny Eckstein
Matt Kakert
Norma Dykes
Sue Carner
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Colette Hildbrand

Technical Advisors
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Henry Ruh KB9FO
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Don Fuller W2WHK
Bill Pasternak WA6ITF
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Bruce Brown WA9GVK/4
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Photography
Mike Stone WBOQCD
Rose Stone
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Max Gould K6GLG
Ken Barber W2DTC

Printing
Jim O'Brien, L.E. Chute Company
Ray Houston, Quad City Printing

Advertising
Mike Stone WBOQCD
Henry Ruh KB9FO

FCC and Legal Affairs
Henry Ruh KB9FO
Bruce Brown WA9GVK/4
Jim Sokol KWOY
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Videotape Programming
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Steve Bruce WA4OAA

Computers
Mike Finley KBOXL
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Dick Kenney W8MBD
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Jim Belletti
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Mike Stone WBOQCD
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TAKE ONE

A5 Editorial Comments

Well folks, here's our DAYTON SPECIAL REPORT issue! Not many magazines or even newsletters can publish literally 4 days after DAYTON (We gave it to the Printer on May 3rd) getting you the reader the latest in what all took place at the World's largest Hamfest. Count the weeks or months before you start seeing DAYTON reports in other Amateur periodicals and see who gets you the information "first"? Okay, in all honesty, I know we are small potatoes-but it's one of the advantages!

Hotel/Motel ATV Contest

I was really proud of you FSTV'ers this year that went to the trouble of bringing ATV gear along with you for the Hotel/Motel Ham-TV Contest! Even more surprising were the numbers of contacts made. Next year will bring about even a more serious effort for the event.

Company Structure

A bit of explanation on a question we were asked quite a bit this year at Dayton regarding the structure of our business. QCD PUBLICATIONS, INC. is a registered legal corporation in the State of Iowa that is owned on a 50/50 basis with my XYL. There are no other owners or controlling individuals (A legal U.S. Post Office statement is published each year to this fact). It is the main Company in which we jointly share stock. It has several internal operating "divisions" such as; A5 ATV Magazine International, A5 Bookshelf, A5 - USATVS Videotape Library, QCD Marketing Services, International Sales & Marketing, QCD Micro Software and Live Video of Iowa Productions. These divisions are quite simply a way to sort and keep track of sales categories for the books. We could not make a living serving your needs off of the "A5" publication alone. We are having fun doing the work and try to supplement our income with these additional side area divisions. Profits from these sideline areas are kept at a minimum to serve and assist the needs of the A5 ATV Magazine customer and are channeled back into the publication to make it even better. Those of you who have purchsed items from our Buying Services Division know that the 10% markup is indeed genuine. The Live Video of Iowa Productions division is largely used for videotape film productions and our own local CABLE-TV Channel for our small community.

Volume 14 #6

Enjoy this June 1984 Volume 14 #6 issue. It was put together hurridly and please (as usual) put up with any mistakes that you might see. Our objective was to get it out by the 15th of the previous month on time for delivery to your doorstep by the first of the month! 73's -QCD

"Serving Ham-TV'ers now for 17 years!"

INTERNATIONAL
AMATEUR TELEVISION MAGAZINE

News Roundup

SSTV ON SPACE SHUTTLE IN 1985?

USATVS Member Bill Pasternak WA6ITF of WESTLINK RADIO NEWS SERVICE has informed "A5" that an official proposal has been sent to NASA on Amateur Radio Communications during the scheduled February 1985 launch of the Space Shuttle Mission which incluea Astronaut Tony England W0ORE. According to Pasternak's source of information (Roy Neale K6DUE of NBC), the proposal included the "POSSIBILITY" of SSTV A5 HAM TELEVISION emissions which would be manually operated overlooking the Flight deck orbiter and other outside views. Acceptance of this proposal should be known by May 30th. This is the 2nd SSTV proposal that the USATVS is following closely, the first being a time-rejected proposal for the Flight of Owen Garriott W5DFU and the Space Shuttle Columbia in the fall of 1983.

ICOM DISREGARDS ARRL BANDPLAN

ICOM is in hot water with Microwave Low Power SSB'ers and ATV'ers as the company refused to follow existing ARRL band plans on 23 cm. ICOM is using 20Mhz. splits with a 2Mhz. repeater frequency spread (1271-1273) in 1291/1293 out). Already some reports are coming into "A5" regarding this type of interference being experienced. See A5 article by Tom O'Hara W6ORG in our updated issues. A USATVS "Frequency Protection Committee" is being established to address and advise such situations that may threaten ATV/SSTV/FAX operations.

NEW VIDEO PRODUCTS

Two New Video Related Products have been released which should be of great interest to ATV'ers. Mitsibushi released a P50 Video Printer that snatches video from a camera, VCR, Computer or other sources and prints the picture out in a HI-RES thermo paper printout. Availability is expected by Fall 1984. RAPID TECH Systems, Inc. has come out with a new Model C-77 Video Mixer. The unit takes any standard composite video input and united a 2nd video (external sync required) for fading, split screening, overlays and other unique features. (See A5 Reviews in this issue). An SASE to "A5" brings back the manufacturers sales brochure.

ROBOT COMPANY BITES THE DUST!

GOLDEN, COLORADO- April 27, 1984- RB Robot Corporaton today filed for reorganization under Chapter 11 in United States Bankruptcy Court in the district of Colorado. The Colorado-based corporation found the filing necessary because of unusually high development stage debts incurred in the design, manufacturing, and marketing of its RB5X Intelligent Robot (tm). The RB5X (tm), introduced in September 1982, was the world's first fully programmable, mobile robot targeted specifically to the home, school, and business markets. It is generally considered by analysts of the personal robot industry to be the best-designed and most versatile of the personal robots now on the market. RB Robot remains fully operational and company officials do not anticipate that the action will adversely affect shipments of the RB5X to the firm's worldwide dealer/distributor network.

NEW HAM YEARBOOK COMING...

The first annual AMATEUR RADIO OPERATOR'S YEARBOOK will be released in July or August of this year. Personal photographs are sought and encouraged. There is no obligation for taking the photos. Photographs of ATV/SSTV/FAX/RTTY operators that have appeared in past issues of A5 ATV MAGAZINE will also be included in a special section. Callsigns of pictures used will appear in a future issue of "A5". The hardcopy manual is 8 1/2 by 11 inch in our size. Photos and captions should be sent to AROY, P.O. Box 257, Malden, MO. 63863 or call (314) 276-5476. Retail price of the thick hardbound book is $20.00 and will be obtainable direct or thru QCD Marketing Services. Watch "A5" for this notice.

ARRL INFORMATION UPDATE

The 1985 ARRL HANDBOOK Specialized Communications Chapters are being rewritten and updated! USATVS Member Bruce Brown WA9GVK reports that ARRL Official Paul Rinaldo W4RI has asked him to coordinate the lengthly updates which will be the first total revision on the annual League handbook in many years. Brown has several other USATVS Members working with him on the extensive project including Tom O'hara W6ORG (ATV), Dr. Robert Suding W0LMD (SSTV), Dr. Ralph Taggart WB8DQT (FAX) and others. The 1985 ARRL HANDBOOK should be available to the general Amateur Public in late 1984.

Results of the ARRL March election are in! Larry Price W4RA-President, Leonard Nathanson W8RC-1st Vice President, Gar Anderson K0GA-2nd Vice President, Jay Holladay W6EJJ-3rd Vice President, Richard Baldwin W1RU-International Affairs Vice President, David Sumner K1ZZ Secretary, James McCobb K1LLU Treasurer. Larry Price W4RA replaces the late Victor Clark W4KFC as ARRL President.

In other ARRL News, 160 Meter Power Restrictions have been lifted with A1 and A3 emissions have a PEP MAXIMUM output of 1500 watts in the 1800-2000 Khz. band. The League is asking for the addition of F1 emissions on the 160 Meter Band. Also, the League filed a Motion of Expedited Action on phone band expansions in the 10-15 and 75 Meter bands. SSTV'ers will soon enjoy even fu rther new band segments. The ARRL additionally filed a petition for Rulemaking requesting the 24.890-24.990 and 902-928Mhz be opened up as soon as possible.

COMMENTARY

P.O. BOX H. LOWDEN, IOWA 52255

All correspondence addressd to this column, must be signed with full address information. Requested "Unsigned" comments must be made in writing to the Publisher with all letters recieved being held on file for public inspection for a period of one year. We try to answer all mail on a first come, first serve basis. -WBOQCD Editor/Publisher

Reader wants more TVRO articles!

"Dear Sir, Subscribe to your magazine for the ATV and TVRO articles. The latter you seen to have dropped. Would like to see them continued. In regards to the TVRO articles- July 83, Page 26 states additional article coming on the Tronis discriminator etc- it did not appear. Sept. 83 issue, Page 38 has the Single Conversion D.C., talks about the P.C.B., none appear- even in followng issue?? Can this be corrected?" Thank you, Peter Senotiuk VE8PS Canada.

Taking a rest...

"Dear Mike, I realize I haven't taken the time to sit down asnd write more articles for TVRO or ATV within the last few months. Well, believe it or not I had several articles written several months ago, but during a massive clean-up of my shack, somehow the articles became lost; photos, artwork etc., and to this day I am still looking. Due to heavy involvement with other activities, my writing time has become very limited. I do still plan on taking the time to write more articles, but due to the nature of commericialism on the TVRO industry, pioneering interest in development has faded from the minds of A-5 readers, and has been replaced by inexpensive units flooding the market. I will try to channel my ideas and articles towards new improvements, along with the concept of trying to spark interest in the microwave spectrum. I have greatly appreciated all you and A5 have done for me in the past, and will make a stronger effort in 84 to contribuite more articles. Please print in your next A5 a request to obtain some articles that WE, the northern California ATV'ers, would like to see: 1. More articles on 1296 Mhz equipment, such as amplifiers, mixers, downconverters etc. 2. A color correctoer (such as the ones sold in video magazines) that will adjust hue, chroma, etc., 3. A frame sync. device that would allow two independent video sources to be combined without having to use a common sync source. I'm sure that some of your readers have access to information on the above, that would be of value to all of us. In closing, I want to wish you continued success with A5, and I am looking forward to new and interesting reading in the year ahead." Regards, Gerard Wilson, System Electronics, P.O. Box 241 Glen Ellen, CA. 95442

Ho Hum...Not again?

"Hi MiKe, If you can find some room in one of your A5 issues I would like to have the following letter published. Editor of the SSTV column World Radio Ron Flym KB8LU; Read your SSTV article in the March 84 issue. Sure hope you never try to write a favorable article about my products. I think you need to put your head on straight. I thought BEN's (N4EJI) SSTV-plus system was above Mud-slinging. Maybe you have had your head in that Mud for the past few years because all the work done with the TRS80C Computer by Amateurs that you call "Hodge-Podge" is what developed the interest in the TRS80C for Amateur use in the first place. Keep trying Ron maybe someday you'll learn how to write even a complementary article." Thanks Mike, D. Girton N7QM.

New subscriber

"Please start my subscription with the Jan. 1983 issue. I am interested in back issues also. Please let me know what is available and prices. Can you help me with any information you may have or can tell me the references for converting television sets to connect to video recorders." Thanks John L. Porep, KB7HC Las Vegas, Nevada

Question for KB7HC

"Please elaborate a bit.. Most VCR's hook RF into Ch. 3 off any TV. Are you talking about older VCR's without RF Modulators?" TNX-MWSTONE

And a quick reply...

"Hello Mike, Thanks for sending the Jan., Feb., March 83 issues. On the conversion of television sets, yes I was thinking of the old VTR and VCR types without RF modulators where composite video input and output will be necessary along with audio input and tuner audio output. 4 Jacks will be needed on the modification of the TV set. Possibly some new transistor circuitry will have to be added, Probably a 12 inch transistor TV can do." John L. Porep, KB7HC

Old letter from Bruce...

"Mike, Sorry for not getting back to you sooner regarding the AIV conference but I've been busy at work in Europe and home this summer. Most of the efforts of Metrovision right now are aimed at Survival. Earlier this year I observed the lowest level of activity since the repeater turned on in March 74.

In short, we've got lots to do, and few people to do it...Needless to say, York, PA. has not been on the priority list. Our objectives for the near term are getting new members (new potential builders and motivators) and new people on the air. If we do good in Sept. affairs, maybe there will be more interest in York. We'll keep you informed of what's happening. Enclosed is my membership renewal and money for TV Bloopers Part I and II. Keep up the outstanding job with A5!" BCNC Bruce Brown, Alexandria, Virginia WA9GVK

A GREAT GIFT IDEA FOR DAD ON FATHER'S DAY!

(Birthdays Too!)

NOW SHIPPING!

A5 "HAMFEST!" GAME RELEASED AT DAYTON 1984 HAMVENTION!

HAMFEST! (C) 1984 made its grand appearance this year at the 1984 DAYTON HAMVENTION. It was on display at our Booth #279 (A5 ATV MAGAZINE) all durng the show, and in the flea market area in two locations on Saturday and Sunday. It was also put on sale at a better traffic flow location on Sunday as well. Those that bought HAMFEST! (C) 1984 were very energetic to find out how it works. The wives and kids seemed to be more interested in board games than the Dads who were out hunting for Radio type bargains. It was suggested by one of the buyers of Amateur Radio's only game, that we publish the Rules of the game and maybe that will show how much fun HAMFEST! (C) 1984 can be. Thus, you'll find on the next page-our Official Rules and Guidelines along with some samples of money used, QSL/QRM Cards and Score Tally Sheets.

We had a very hectic last four days just before Dayton-trying to assemble 1,000 games by hand. At several times on the weekend of the 20th, there were as many as 15 adults and kids taking over almost every room the house.

We would like to offer a special price discount to our loyal "A5" supportters on this unique "fun" product. You must mention your subscription renewal date (found on the back cover of each issue on the maling label) to receive a $5.00 discount at $14.95 per game. Gather orders as a Club or Group, ship to one location, and we will pay all shipping costs! (Minimum order 10). Thanks to those who helped in the game and we hope that it will be great seller for years to come.

HAMFEST! ©1984

Purchased Equipment Personal Inventory List

Player _____ **Call Sign** _____

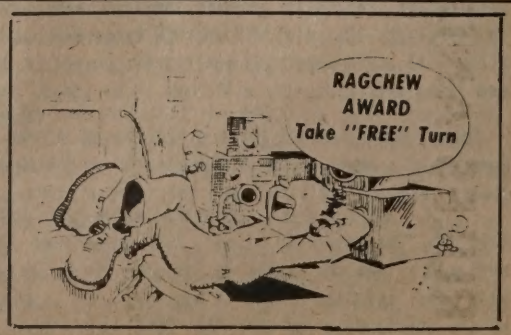
	Price	In Stock	Retail Store On Hand	Retail Store Verified
NOVICE (Blue)				
1.Coax	$ 50	(6)	___	___
2.Dipole Antenna	$ 75	(6)	___	___
3.CW Key	$ 25	(6)	___	___
4.HF Rig	$ 800	(6)	___	___
5.Clock	$ 50	(6)	___	___
TECHNICIAN (Yellow)				
1.Tower	$ 150	(5)	___	___
2.VHF Antennas	$ 200	(5)	___	___
3.6M Rig	$ 300	(5)	___	___
4.2M Rig	$ 300	(5)	___	___
5.ATV Rig	$ 400	(5)	___	___
GENERAL (Green)				
1.HF Antenna	$ 250	(4)	___	___
2.Microphone	$ 40	(4)	___	___
3.HF Amp	$1,440	(4)	___	___
4.Wattmeter	$ 280	(4)	___	___
5.Rotor	$ 200	(4)	___	___
ADVANCED (Purple)				
1.SSTV Converter	$ 695	(3)	___	___
2.TV Monitor	$ 180	(3)	___	___
3.Camera	$ 800	(3)	___	___
4.RTTY TU	$ 200	(3)	___	___
5.VHF Amp	$ 300	(3)	___	___
EXTRA (Red)				
1.Computer	$ 250	(2)	___	___
2.Repeater	$1,000	(2)	___	___
3.Oscar Gear	$1,400	(2)	___	___
4.DX Resort	$5,000	(2)	___	___

To Be Completed By The Retail Store Owner

FCC LICENSE STATUS

Novice☐ Technician☐ General☐ Advanced☐ Extra☐

Additional Inventory List Pads May Be Ordered From
QCD MARKETING SERVICES FOR $1.50 ppd.



CHANNEL 4 Sample QSL Card

HAMFEST! ©1984

RULES AND REGULATIONS

First Edition - April 1984

INTRODUCTION

Welcome to the wonderful world of Amateur "Ham" Radio! The **HAMFEST!** ©1984 game idea was created and designed by Mike Stone WBØQCD and his family. WBØQCD has been active in just about every mode of Amateur Radio Shortwave Communications for many years including CW, Phone, RTTY, FAX, OSCAR, SSTV, FSTV and Computers. He has held office for several local Amateur Radio Clubs, Repeater Trustee and was a member of the U.S. Navy MARS program. He has received several distinguished award citations, is a very sought after guest speaker at many Ham Conventions and is at present Editor/Publisher of "A5 ATV MAGAZINE", an internationally recognized "monthly journal" for Amateur Television (ATV) enthusiasts. The concept behind **HAMFEST!** ©1984 began around Christmas 1981, but wasn't actually designed and constructed until the fall of 1983.

GAME PIECES

HAMFEST! ©1984 is marketed in the U.S.A. by QCD MARKETING SERVICES, a division of QCD PUBLICATIONS, INC., 804 Jefferson Avenue, Lowden, Iowa 52255. It is copyrighted ©1984 with All Rights Reserved to the designer; WBØQCD. Any comments or suggestions regarding **HAMFEST** ©1984, should be sent to the above address. We encourage your comments and helpful suggestions that might be incorporated in future production runs of "Amateur Radio's only game"! **HAMFEST!** ©1984 is comprised of 1-quality laminated, full-color game board, 1 set of Official Rules and Regulations; 20 QSL Cards, 20 QRM Cards, 17 FCC Test Cards, 6 Credit Cards, and an Equipment Owned Inventory Pad. A total of 275 pieces ($21,758) in Cash Play Money, 1 Pair of Throwing Dice and 6 Player Advancement ID Tokens are housed in a combination sturdy storage/mailer container tube. It is advisable when restoring the **HAMFEST!** ©1984 plastic laminated game board in the tube to roll it in the reverse manner to assure a near flat surface during playing periods. Lost or worn parts can be replaced directly from QCD MARKETING SERVICES.

HOW "HAMFEST!" IS STRUCTURED

Up to six players can play **HAMFEST** ©1984 at a time. One person is designated the RETAIL STORE. Each player is given $1500 to start the game. Denominations include 1-$500, 5-$100, 6-$50, 6-$20, 5-$10 and 6-$5 bills. The RETAIL STORE OWNER is in charge of all monetary exchanges and holds deciding power over any game controversial decisions. Players may purchase any equipment around the board only when landed upon and at the established retail price. Special Purchased EQUIPMENT INVENTORY sheets are used and verified by the RETAIL STORE OWNER to keep track of all purchased equipment. Equipment may not be purchased during QRM penalty movements but may be purchased during QSL reward movements. Equipment can be returned to the Retail Store only during the player's turn and at one-half trade-in value. The **HAMFEST!** ©1984 game board is made up of 40 squares, 24 are available at Retail, 5 for Magazine Renewals, 2-QSL, 2-QRM, 2-FCC and 2-HAMFEST, 1-ARRL, 1-Insurance Fund and 1-Ham Shack (START). "Safety squares" in which a player may not be sent "HOME" include all QSL, QRM, ARRL, HAMFEST, FCC and the starting HAM SHACK positions.

OBJECT OF THE GAME

The object of the **HAMFEST!** ©1984 game is to advance from NOVICE to EXTRA Class FCC license by either one of two methods; by purchasing the required amount of Ham Radio equipment designated for each class license grade (5-NOVICE, 5-TECHNICIAN, 5-GENERAL, 5-ADVANCED and 4-EXTRA) or by successfully passing all 5 FCC license tests as drawn from FCC Test Cards. The first player to reach the FCC Extra Class license grade is automatically designated the title "SUPER HAM" and wins the game! (The game may continue to determine other remaining finishers if desired.) All equipment squares are color coded to match the grade of FCC license currently being worked on. Note that the RETAIL STORE (as in real life), has limited gear inventories on certain pieces of equipment. (The RETAIL STORE OWNER must maintain an accurate listing of equipment inventory status.) Equipment availability is structured to dwindle automatically (6-NOVICE, 5-TECHNICIAN, 4-GENERAL, 3-ADVANCE and 2-EXTRA); thereby making players more competitive and careful toward all buying/trading opportunities. WARNING! It has been known for some players to purchase equipment ahead of time to "lock out" further buying of a lead winning player. It is advisable to purchase all that you can afford to buy. 6 BANK CREDIT Cards exist in the QSL Card pile. Only one BANK CREDIT CARD is allowed to a customer. If an unneeded CREDIT CARD is drawn, the player may select another draw. They may be used during times of low cash flow toward the purchase of any of the higher priced gear designated on the board with the MC or VISA CARD symbols. This CREDIT CARD must be turned into the RETAIL STORE during the credit period with money owed paid back as soon as cash reserves are built back up. Once this loan is paid, the held CREDIT CARD is then returned to the owner. If a player BANKRUPTS or GOES BROKE, they are eliminated from the game with all unsold equipment being returned to the RETAIL STORE after a special AUCTION bidding process is held by the RETAIL STORE OWNER.

HOW TO PLAY!

TO START THE GAME, the player with the highest grade FCC Amateur License (use longevity in case of ties), tosses the dice on the board. Highest throw winner begins the game. Player movement then begins in a clockwise rotation. Any dice rolled 7 or 3, or combination thereof, advances the player from the starting HOME QTH position to begin building the HAM SHACK! Movement then begins along the board in a clockwise manner. Players may purchase any Radio equipment shown in squares landed upon and must have them verified by the RETAIL STORE OWNER. Once players obtain the required necessary electronic gear for each grade license, the RETAIL STORE OWNER verifies the upgraded FCC LICENSE status on the PERSONAL INVENTORY SHEETS. Players landing on "good" QSL squares - draw one card from the designated QSL Card pile. A similar drawing is conducted for "bad" QRM Card spaces as well as FCC Test squares. Players collect a bonus of $500.00 each time they pass "THE HAM SHACK". If a new player lands on a square where another player is already sitting from a previous move, the first player gets "bumped" (unless a SAFETY location exists) and gets sent back to "THE HAM SHACK" (collecting no money) with 10 additional movements awarded the new player. The active player may buy any piece of gear on the "bumped" square before taking his or her 10 "bonus" moves. Players must renew all Magazine requirements and abide by all drawn carded instructions or be eliminated from the game. There is no penalty for the throwing of consecutive dice doubles with an extra turn rewarded during this occurrence. Payments for equipment or antenna failures go to the INSURANCE FUND (placed under the appropriate square location on the game board) payable to landing players. If any player lands on one of the two game squares designated "HAMFEST!", all players must shout the word "HAMFEST!" and a ONE MINUTE BARTER, TRADING AND BUYING period begins (timed by the RETAIL STORE OWNER); in which any possessed gear may be sold for whatever value agreed upon between sellers and buyers. At the conclusion of the 1 minute HAMFEST period, the RETAIL STORE OWNER declares the HAMFEST is CLOSED, with all players resuming game board movements in the normal rotation process until another player lands on one of the designated HAMFEST! squares which begins the TRADING and BUYING period all over again! Players may elect to sell off their acquired gear once the sought after FCC license has been obtained. This will give them a better cash flow and make it more challenging for other players in the game.

SPECIAL THANKS!

We hope you enjoy **HAMFEST!** ©1984. It was fun designing and putting this game together. This game is our contribution to the world's greatest hobby of AMATEUR "HAM" RADIO! To make the game even more enjoyable, invite some of your "Ham" friends over to play the game with you.

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2210 2210G	220	130	10	225 265
2212 2212G	220	130	30	199 239
4410 4410G	440	100	10	225 265
4412 4412G	440	100	30	199 239

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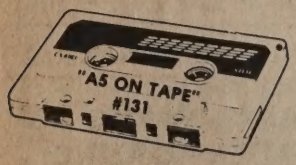

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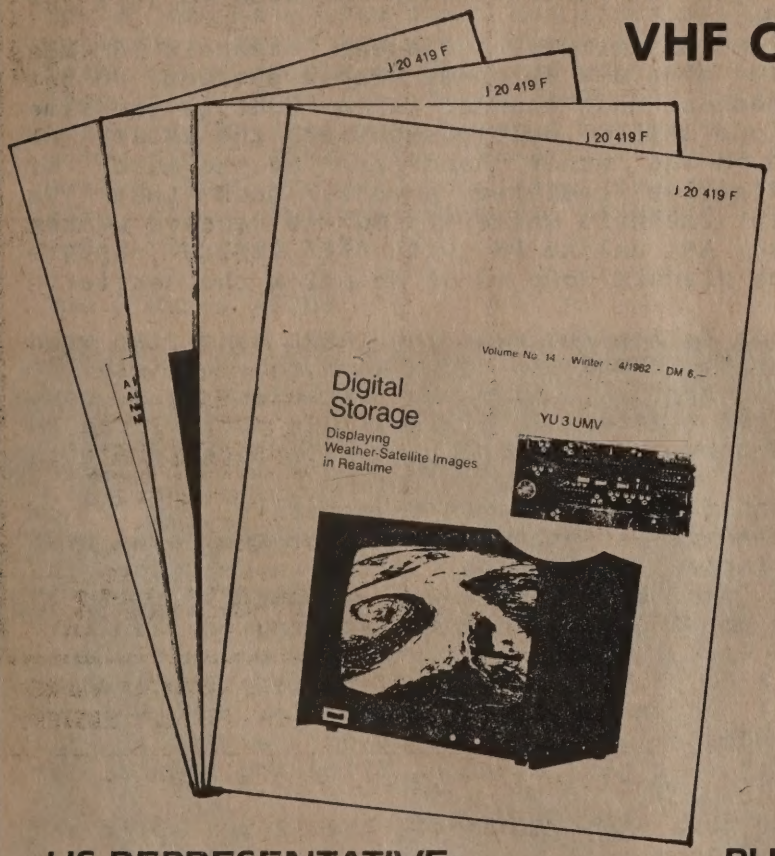
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1200 MHZ. BAND THREATENED BY ICOM REPEATER INTERFERENCE

ARRL BANDPLAN IGNORED BY POPULAR COMMERCIAL MANUFACTURER

USATVS FREQUENCY PROTECTION UPDATE TO TOM O'HARA W6ORG

SOME NOTES ON 23CM FM REPEATER SYSTEMS

The existing 23 cm Southern California band plan called for 12 mHz splits for both FM and ATV repeaters. Until recently, ATV with its 3 repeaters and 180 amateurs capable of getting on, was the greatest user of the band. Video at the Rose Parade, Shuttle video, marathons, and other public service events, as well as teaching and learning basic with home computers over ATV, home video tapes, and normal shack QSOs have brought in amateurs with a wide variety of other interests to this mode.

Per broadcast spectrum management, adjacent channels (6 mHz spacing) in any geographic area are skipped. Cable systems do not necessarily skip channels because each channel is brought to the same signal level at the head end before multiplexed into the cable. RF thru the air transmissions on the other hand are at the mercy of various pathlosses, and effective radiated powers, such that TVs cannot reject strong adjacent channels while trying to receive weaker on channel signals. Also AM, unlike FM with its limiter capture effect, can see interference signals down to 50 db below the carrier.

ICOM REPEATER. ICOM did not follow the existing ARRL band plan when they brought their new 10 watt repeaters and 1 watt mobiles into the country. They are on 20 mHz splits. Also the repeaters only come with a 2 mHz frequency spread (1271-1273 in/ 1291-1293 out). The FM operations, unless they conform to the band plan will interfere with existing ATV operation.

We have now revised and finalized the FM segments of the 23 cm band plan. The new band plan is attached. Note that the open test pair is 1271.00/1283.00, simplex centers on 1294.50, and since the Icoms synthesizers are set for 10 kHz increments rather than the 25 kHz as is done on the 70 cm band, the channel spacing is 20 kHz. Icoms stated stability is +/- 1.3 kHz which should be sufficient, however 80 kHz channel will be coordinated until filled, followed by 40 kHz, and then 20 kHz if proven technically feasable. Much later in the future if all 100 channels become occupied, expansion will move up 1 mHz at a time with vestigial sideband filtering required at the atv repeater.

The IC-RP1210 should be able to conform to the 12 mHz split and frequencies listed. We hope Icom will bring the next units into this country properly crystaled and tuned to conform to the band plan. The only change to the repeaters as are presently in use, is to change both the second transmitter and receiver crystal oscillator, and then repeak the following bandpass filters. The movement is less than 7% in frequency which should be within the filters tuning range.

To put the transmitter into the 1282-1284 segment the crystal changes from 46.833 to 43.833 mHz. Input to the 2nd mixer then becomes 131.65, and its output 142.4 mHz. The receiver would not have to be changed except if the input is to be in the 1270-1271 segment, it tunes 1271-1272 as it comes. To drop it down one mHz, the receiver 2nd oscillator changes from 40.235 to 39.9017 which then triples to 119.705 for the 2nd mixer input. This mixers output then becomes 130.4. In both the transmitter and receiver there is no change to the synthesizer.

March 23, 1984

The diplexers if bought from Icom are very expensive. Telewave, however, has made a 12 mHz split diplexer for this repeater that is better and less cost. It is the model TPRD-12044 and runs list for $651, talk nice and you can probably get the radio shop discount. Insertion loss is 1 db and has at least 75 db rejection. It comes as a 5.25" high 19" rack panel. For more info contact Rick Underwood at Telewave (1155 Terra Bella AV Mountain View CA 94043 415-9684400).

NCG has imported some 8 dbd gain vertical omnis. They are about 4' long with a N connector. They look like the station master type 450 antennas. Price for the model CA-1215S is about $140 each. Contact Bruce Stwertnik at NCG Co. 1275 N. Grove ST. Anaheim CA 92806, (714) 630-4541.

To make up for the 9 db additional path loss on 23 cm compared to 70 cm, base stations and links may want to use high gain beam antennas. There are two commercially available ones at the moment, both give about 16 dbd and use N connectors. They are the 1296-LY loop Yagi and the Tonna F9FT 23 element Yagi. Quality fresh transmission line must be used as the db losses at this band can be quite high. Other than hardline, Belden 8214, 9913, 9914, 9915, or Saxton 8285 are good low loss, greater than 95% braid, flexable RG-8 size coax. Foliage absobtion is great, so try to get the antenna above the tree tops.

Tom O'Hara, W6ORG

"A5"

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CHANNEL 9

SOUTHERN CALIFORNIA 1240-1300 MHZ BAND PLAN
Revised March 23, 1984

Segment (mHz)	Use	Pairs with	notes
1240-1246	ATV Repeater Output	70 cm or 1289	1241.25 video carrier VSB filter required
1246-1248	Point-to-point links	1258-1260	Aux link, control
1248-1258	ATV Repeater Output	70 cm	1253 video carrier
1258-1260	Point-to-point links	1246-1248	simplex, control
1260-1270	Satellite uplink & ATV simplex	-	Amsat Oscar 10 1265 video carrier
1270-1272	FM Repeater Input	1282-1284	16F3 emission 20 kHz channels 1271.00 test
1272-1282	ATV Repeater Output	70 cm	1277 video carrier
1282-1284	FM Repeater Output	1270-1272	16F3 emission 20 kHz channels 1283.00 test
1284-1294	ATV Repeater Output, Input, or ATV links	70 cm or 1241.25	1289 video carrier
1294-1295	FM simplex	-	1294.50 calling 16F3 emission 20 kHz channels
1295-1297	Weak signal CW & SSB	-	1296.000 calling No FM
1297-1300	Data, simplex,links	-	

Additional Notes:

AO-10 uplink 1269.85-1269.05, downlink 436.15-436.95.

Open ATV repeaters have 434.0 inputs, and may use 426.25 as a secondary input on a non interference basis to simplex.
1253 WA6SVT Santiago peak, 1265 W6ORG Johnstone peak (will move to 1241.25 or new repeater on Mt. Wilson), 1277 WA6ZVE Contractors peak, & 1289 W6KVC Lake Arrowhead (under development). ATV coordination and talkback is 146.430.

Weak signal coordination frequency is 144.170 USB.

Tom O'Hara, W6ORG

NEW LINE OF VIDEO-COMPUTER SPECIAL EFFECT EQUIPMENT UNVEILED AT DAYTON C-77 UNIT IDEAL FOR FSTV APPLICATIONS

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"A5" received C-77/SGM-1348 test units just before the 1984 Dayton Hamvention. Using our Radio Shack Color Computer, we hooked up the C-77 MIXER and SGM-1348 CCTV Camera within 10 minutes. The C-77 MIXER is very small in size (5.81" width by 6.56" width by 2.12" height) and exceptionally easy to interface to any computer with video output. Any composite video monitor is used (An RF adapter for regular TV use is coming) for displaying the final results. Until now, the only way one could play ith Special Effects Generators was to purchase bulky 19" racknount discarded Commercial Broadcast equipment that usually had problems before it was let out of the TV station.

VIDEO C-77 MIXER permits the computer output and TV Camera image to appear SIMULTANEOUSLY on the screen of a monitor by a flexible window entry insertion. We loaded our favorite ATV CQ Graphic Basic Program and executed it-then opened a "live" square box like window FSTV image right on the computer screen! The window area is controlled by 4 Knobs on the front panel of the C-77 unit. They can adjust the "window" from left to right and top to bottom. You can make the "window" area as small as you want or as large as you want-filling the entire screen if you desire. A toggle type flip switch, also located on the front panel allows switching between Camera, Computer or MIX effect. Individual Adjustable Intensity Control Knobs for the Computer and Camera allow a "fade in/out" type of level control.

The possibilties are endless for ATV and Video enthusiasts. The Computer Universal Input does not have to be a Computer. It can be VCR, another Camera, SSTV or FAX Converter, etc. (Anything 1 Volt Peak to Peak Video). Only the CCTV Camera used for the window input must have external SYNC. It is therefore possible to run a VCR tape and have an open "live window" image from your FSTV Camera commenting about the tape while sending all this video information into your ATV Transmitter for all to see. It could very easy be incorporated into an ATV Repeater putting a "clock" computer message, ID callsign etc. in a lower or upper corner.

NEW RAPIDTECH C-77 Video-Computer Special Effects Generator

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The RAPIDTECH SYSTEMS VIDEO C-77 MIXER inclues several cables, Power supply adapter, and instructions. Regular Retail Price is $349.00. The SGM-1348 CCTV CAMERA with external SYNC is $385.00. A special limited time introductory offer exists until June 30th for A5/USATVS Members on the VIDEO C-77 MIXER unit only at $289.00 (Add $5.00 shipping each unit). This Special Factory offer must go thru the A5/USATVS Buying Service to get the hefty discount. Orders after June 30th will be at the $349.00 price. (4% is added to all MasterCharge/Visa and State Of Iowa Orders). Send us an SASE for Company Information brochures.

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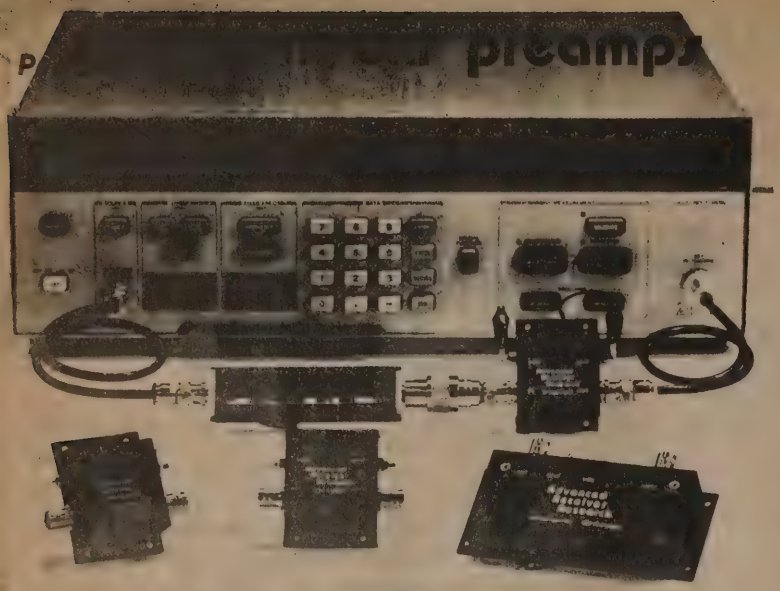

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P144VDA	144-148	<1.0	15	0	DGFET	$37.95
P144VDG	144-148	<0.5	24	+12	GaAsFET	$79.95
P220VD	220-225	<1.8	15	0	DGFET	$29.95
P220VDA	220-225	<1.2	15	0	DGFET	$37.95
P220VDG	220-225	<0.5	20	+12	GaAsFET	$79.95
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P432VDG	420-450	<0.5	16	+12	GaAsFET	$79.95
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SP144VDA	144-148	<1.1	15	0	DGFET	$67.95
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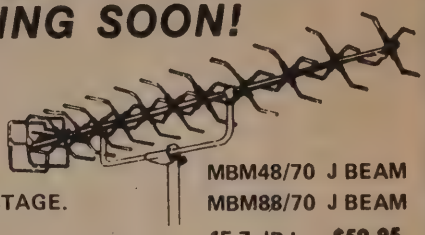

MBM48/70 J BEAM
MBM88/70 J BEAM
15.7 dBd **$59.95**
18.5 dBd **$89.95**

STANDARD FEATURES

- SA-1 SYNC AMP FOR SOLID STATE LINEAR AMPLIFIER USE.
- 2 RF STAGE DC-1 CONVERTOR WITH LOW NOISE NE64535 FIRST STAGE.
- BOTH FM AND 4.5MHZ SUB-CARRIER AUDIO.
- RECEIVE TUNES FROM 418MHZ THRU 455MHZ – OUTPUTS TO TV CH. 2, 3 or 4.
- STABLE CRYSTAL CONTROLLED TRANSMIT – 439.25 MHZ STANDARD – OTHERS AVAILABLE.
- DURABLE STRIPLINE LINEAR AMP FINAL WITH BANDWIDTH FOR COLOR AND 4.5MHZ SOUND.
- AVERAGE POWER OUTPUT IS 6 - 9 WATTS DEPENDING ON VIDEO CONTENT.
- SOLID STATE TRANSMIT / RECEIVE SWITCHING.
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- ILLUMINATED PANEL METER FOR TRANSMIT AMP CURRENT AND RELATIVE RECEIVE FREQUENCY.
- RECEIVE RF GAIN CONTROL.
- CUSTOM MADE ALUMINUM ENCLOSURE WITH EPOXY FINISH.
- 13.6VDC OPERATION FOR MOBILE / PORTABLE OPERATION.
- 10.8" x 6.2" x 2.5"

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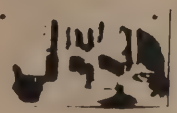
★ 2 FREQ. ADD $25.00
4.50 U.P.S.

ATV KITS AND MODULES



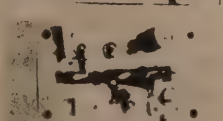
GLB T450L TRANSMITTER – **$64.95** kit. heatsink **$15**
LA–45 UHF AMPLIFIER – **$69.95**

Shipping and Handling:
Add 2% – Minimum $2.00

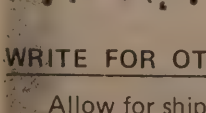
VM-2 VIDEO MODULATOR – Wideband collector video modulator for solid state exciters such as those from GLB and Hamtronics. Input for 4.5MHZ audio sub-carrier. 2½" x 1½"; **$15.50** kit, **$19.95** assembled.

A-2 4.5MHZ AUDIO SUB-CARRIER – Accepts audio from VCR or GLB audio processor to provide ATV audio on TV set. Has on-board voltage regulator and shielded inductor. 2 3/4" x 1"; **$19.95** kit, **$25.95** assembled.

SA-1 VIDEO SYNC AMP – Provides separate video sync gain control for VM-2 above or SE-1a transceiver. Useful when driving solid state amps. **$15.95** assembled, **$12.95** kit.



DC–1 UHF CONVERTOR – Varactor tuned with 2 RF stages. **NE64535** input Double sided stripline design. Outputs to TV ch. 2, 3 or 4. 11 – 14vdc. 2" x 3". **$39.95** kit, **$54.95**, assembled, **$89.95** complete



P-1 WIDEBAND LOW NOISE UHF PREAMP – Uses **NE64535** transistor for min. 18db gain and 0.6db noise figure. Covers 420–450MHZ band. Other frequencies received with change in input inductor. 2 1/4" x 1 3/8"; **$22.95** kit, **$31.95** assembled.

WRITE FOR OTHER ITEMS AVAILABLE

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1984 Dayton Hamvention

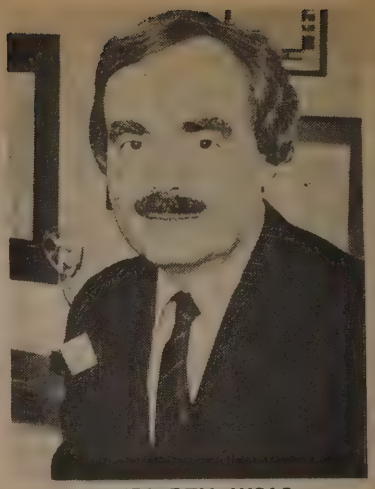
New FSTV/SSTV/FAX Systems Demonstrated
Hotel/Motel Ham-TV Contest Activity Results

Our U-Haul Trailer was once again loaded from front to back, top to bottom, as we hitched up to WB0RTM's (RTM CIRCUIT BOARDS-Bob Wilson) Chevy Van on Wednesday evening and headed for the always exciting 1984 Dayton, Ohio HAMVENTION. The trip down was real enjoyable since RTM did all the driving and I held down the confortable plush bucket seat. There were a few exciting moments such as when we realized in Indiana that I had forgotten my WRAASE SC-1 SSTV/FAX Converter and Keyboard that was to be used by Volker Wraase at his booth for demonstration. We called back to WB0STZ in Cedar Rapids, IA. who was just leaving to stop by my place and pick it back up. Just inside Ohio about 2 A.M. in the morning, we found ourselves behind a Trailways buys that was heading for Cleveland (where we always drop my XYL off to see friends for the Dayton weekend). We tried to keep up with him to show us the way-but Bob got nervous when he had to set the cruise control at 70 thru most of Ohio. We backed off and found our way on our own at a slightly slower pace.

Hotel/Motel CQ ATV!

We set up our "A5" booth Thursday afternoon at our new location Booth #279. At first, the area looked roomy and clear with an excellent extra corner storage area just next to us. Once we began setting up our table, magazine + book racks, etc. the space quickly became filled. By 8 P.M., we were ready for "action" and decided to head back to the LAQUINTA MOTOR INN NORTH for dinner and a good nights sleep. On the way to our Motel, I thought I'd check the publicized 147.450Mhz. simplex frequency-just to see if there were any ATV'ers in town yet. CQ ATV CQ ATV I cried-and it was like the band opened up. At least 7 came right back all saying they were getting set up in their rooms for "live" ATV from Hotel to Motel all Dayton weekend! First calls heard were W6ORG, K8AOH, K2ID, WB8PJZ and WB8UGV. WA8SXT from CINCINATTI had already been to our #202 Suite waiting to set up our base station but since we were running late in meeting him he gave up and went home to make the trip again to us on Friday. A couple VE Canadian ATV Stations VE6AMV and VE6SL had also been waiting and came back over later from their Holiday Inn North location.

By 11 P.M. more ATV'ers had checked in on the 147.450Mhz. frequency-already trying to hit the local Dayton, Ohio W8BI ATV Repeater system. It was very surprising for what started as a funny litle idea turned into a full fledged DX'pedition outing for several serious FSTV'ers! The following ATV stations were logged in at the LA QUINTA Base Station facility as on-the-air "active" seen transmitting and receiving contacts; WB8QCD/WB0RTM (LAQUINTA), K2OJL (LAQUINTA-New Jersey and son Fritz), KD1E of Maine (Knights Inn), WB8UGV (Centerville, Ohio), WA8PJZ/WD8EHP/WB8VJD, K8AOH (Springfield, Ohio), WB8ZAH (Cincinatti), VE7CIM, KC9NW/AD9W Wisconsin (Knights Inn) and W8CHK (Michigan).



Dave Bell W6AQ was voted 1984 Dayton "Ham of the Year" for all the work he has accomplished on video productions on behalf of Ham Radio Communications.

DAVE L. BELL, W6AQ
Amateur of the Year

Those ATV'ers listed above, have had their "A5" subscriptions extended for participation in this special event. If we have missed anyone that did indeed set up a "live" ATV station in Dayton-please write and let us know. The Dayton W8BI ATV Repeater System uses ON-CARRIER INPUT Audio with standard SUB-CARRIER Audio output. This is done for two reasons, for long distance DX'ing advantages and local FM channel inputs. (A complete description of the W8BI ATV Repeater System is elsewhere in this issue). The Hotel to Motel ATV signal idea was successful with everyone agreeing to a more serious system setup complete with High Power linears and multielement beam arrays for 1985.

Friday Night Meeting

The Don Miller W9NTP/Robert Suding W8LMD SSTV "Experimentors" Meeting at the Holiday Inn North was well attended. We counted 120 when we arrived around 8:30 P.M. Dr. Ralph Taggart WB8DQT, Ben Blish N4EJI, Sam Mormino WA7WOD, Volker Wraase DL2RZ, Dick Kinney W8MBD, Gerald Klatzko ZS6BTD, Tom O'hara W6ORG, Bob Rubesh (Robot) were but a few of the main speakers. The front and back of the room housed actual display areas and refreshment facilities. Although the room used was quite small, sufficient ventialtion flow kept everyone quite confortable. Some highlights of the annual Friday night get-together were; Clyde Miller WB4AOH was representing COMMSOFT Co. showing of their new HI-RES Color SSTV System for the APPLE COMPUTER. If you were unable to attend Dayton or the Friday Night Get-Together, we "videotaped" the entire program. If you would like a copy of this historical event, see our Videotape Library Listing elsewhere in this issue.

Saturday ATV Forums

The SATURDAY Afternoon SSTV/ATV FORUM met at 1400 in one of the new building rooms #2 and was a pleasure to sit and listen in. The Moderator was Dr. Don Miller W9NTP. Speakers included Dr. Ralph Taggart WB8DQT on "USING THE K6AEP TRS-80C Computer for all SSTV Modes, Color Systems and Facsimile". Bruce Brown WA9GVK from Virginia spoke about "TV HAMS SHOW THE RIGHT STUFF", a demonstration of the recent STS-9 Mission and how ATV Relays were used.

Bruce also gave talks about a "NEW 56K KILOBIT FSTV TRANSMISSION SYSTEM THAT HAMS MAY BE USING IN THE FUTURE" and "PARALLELING HIGH POWER SOLID STATE LINEAR AMPLIFIERS FOR VERY HIGH POWER ATV". A scheduled guest speaker Bill Bryant K9KKL from Springfield, Ill. got his times mixed up and missed the Saturday Afternoon program but attended the later ATV get-together at the LA QUINTA Motor Inn showing his unique HI-POWER ATV LINEAR Building techniques. We covered for Bill's error for a few minutes talking about high-power ATV Linears, showing K9KKL's dual 4CX250F Amp and introducing a representative of HENRY RADIO Company of California. We also made the announcemnt of the possible SSTV Mode transmission on the upcoming 1985 Tony England Space Shuttle Flight. Skip showed off the new TEMPO 2004A Kilowatt Amp and discussed briefly how this linear should be used for FSTV applications. Many Forumn attendees came up afterwards to get a first hand look at both the homebrew K9KKL and Commercial TEMPO 2004A Amp out-of-case. It was interesting to note that when a show of hands was asked for on how many Forumn attendees were on SSTV versus FSTV that there was a slight edge for SSTV'ers this year. Approximately 250 attended the Miller SSTV/ATV Saturday afternoon Forumn-well above 35 that only showed up in 1983.

"A5" Hospitality Suite #202

Saturday night hosted our 2nd annual "A5 MAGAZINE" Hospitality Suite/Meeting at the LAQUINTA North (Room 202). The room was packed all night with FSTV'ers, SSTV'ers and FAX enthusiasts. At about 8:30, we had everyone go around the room and introduce themselves, tell what mode of HAM-TV they were into, and what activity was taking place in their local areas. A couple times, 2 people found out they were within ATV striking distance but didn't know of each other's similar interest. W9NTP talked about his acquisition of SILVERNAIL ELECTRONICS and his new Single board SE1A ATV transceiver.

Old timer tells all...

Bob Neuhaus K2KQZ of Staten Island, NY. discussed briefly during the meeting how things got going on ATV back in the 1960's and 70's and answered how 439.25Mhz. came about and other similar questions. Ron Cohen W3ZKO was introduced (former A5 Publisher) as was W1JKF Brooks Kendall (SSTV NET), Bob Wilson WB0RTM, Tom O'hara W6ORG and other prominent ATV'ers. Bill Bryant K9KKL displayed some of the homebrew gear used to make his large HI-GAIN Amplifiers for UHF-TV. FAX pictures were distributed showing much better than SSTV copy on PRINTOUT Photos. The casual meeting broke up by 11:00 P.M. with our favorite latest "BLOOPERS" run in color for those midnight "nite-owls".

Things started early!

Sunday morning came early as I went down to pick up my XYL at the bus station at 3:30 A.M. which maybe accounted for tired eyes and disposition starting to take its toll. Charlie Hudson and his lovely daughter Diane spent alot of time at our booth and Flea Market locations as did Jim K2BJL and his son. We appreciated the help. Sunday was our day to roam quickly thru the dealer's booths to look first hand at new products and to visit the popular Flea Market. We were packed and on our way back to Iowa by 5 P.M. only

Max Farmer VE6SL and Bronc Blain 2L4PJ Stop to say hello at the "A5" booth!

Commercial displays

Some of the Commercial Area Dealer booths we got a chance to visit; Advanced Receiver Research (#389) had a whole new line of RF Switching UHF Receive Preamps, AMSAT (#278) replayed the Flight of STS-9 tapes, Flesher (#319) Hal Companies showed new lines of RTTY Computer equipment, Henry Radio (#219) displayed actual HF and VHF linears, Interface Systems (#44) showed Color boards for the MICROCRAFT VIDEOSCAN 1000 line, NOAA (#299) showed some very interesting Weather FAX information, PC ELECTRONICS (#153) (W6ORG) showed their new "KREEPY PEEPIE" transmitters and a prototype RTX-4 Repeater/Beacon transmitter in a 19" rack mount, Richard Kinney worked all weekend out of the PUBLIC DOMAIN SOFTWARE booth (#386) showing his new ECONOMICAL Software that received SSTV on the Commodore 64, Robot Research, Inc. (#154) displayed their expensive long awaited for 1200C Model SSTV HI-RES; Converter, Murray and Lee were back from Science Workshop (#218) in Bethpage, NY. promising to work back into the "A5" crowd, John Beanland and his family were at it as usual selling J-Beams, filters and converters at their Spectrum International Booth (#66), Tom Harrington smiled all weekend after swapping one of the rare MITSIBUSHI P50U Video Printers for a Volker Wraase FX665 Converter at the UNIVERSAL ELECTRONICS booth (#291), Vic Comm was busy selling VIC20 and Commodore 64 SSTV Software and Volker Wraase DL2RZ had a nice "live" display on his SSTV/FAX equipment also showing the MITSIBUSHI Video Printer at work printing out HI-RES detailed SSTV B/W, Color and FAX pictures. "A5" peddled our new HAMFEST! (C) 1984 Board Games for our new additon to the line.

Dayton 1985!

In conclusion, Dayton was once again a smashing success! Even this years weather cooperated fully. It seemed that attendance might have been down a few thousand this year-but the quality remained at it's usual high level. Our hearty thanks to those Dayton volunteers who put on this wild affair and we are sure looking forward to going again next year to DAYTON 1985! QCD

Turn a few hours work into years of fun with Amateur Television.

NEW

ATV-2

$59.95

ATV Converter*

The new ATV-2 converter has two super sensitive RF Pre-amplifier stages using the low noise MRF-901 (1.7 dB NF) transistors. The ATV-2 tunes from 420-450 MHz and down converts to channels 2, 3, or 4 on your standard TV set. The circuit uses durable microstrip design for stability and simplicity. The combination of a dual RF stage, the microstrip design, and the hot-carrier diode double-balanced mixer reduces UHF TV intermod problems. The local oscillator is varactor controlled for ease of tuning. An additional feature not found on other ATV downconverters is the incorporation of a post amplifier stage (6 dB min gain) following the double-balanced mixer. This post amplifier stage is used to overcome the conversion loss of the mixer. The Post-amplifier also delivers a signal level that is acceptable to the TV set to overcome the TV set's sensitivity threshold. The addition of the Post-amplifier circuitry is most noticeable on every weak signal reception. Overall the Communication Concepts ATV-2 downconverter is just what you need to enjoy amateur television to the fullest extent.

ATV CONVERTER:

ATV-2-Wired and Tested..... $59.95 each
ATV-2-Pk Partial Kit..... $44.95 each
ATV-2-PCB Printed Circuit Bd only..... $10.00 each
ATV-2-I Instruction Manual Only..... $5.00 each

Specifications

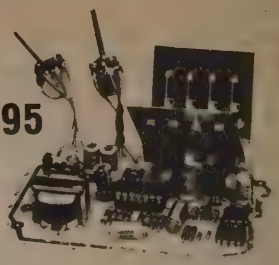
RF Input.....420-450 MHz
RF Output.....Channels 2, 3, or 4
DC Input.....+12 Vdc at 50 ma
RF Stages.....2 (MRF-901)
LO.....Varactor Tuned
Fine Tuning Range.....
.....Approx. 30 MHz
Pre IF Stage Gain.6 dB Minimum

Audio Squelch Control

You have a squelch on your 2 meter equipment; why not add a squelch to your ATV monitor. Now you can avoid the major problem of operating ATV—the annoying hiss and static when the signal is not present. With the ATV squelch, you no longer have to turn the volume down when the signal disappears and risk the chance of missing a signal.

The squelch easily connects to the TV receiver audio stage without modification of the TV, since the squelch circuit contains its own audio output stage. You must provide your own speaker. Operator safety is provided by using transformer isolation between the receiver and the squelch circuit, thus eliminating the shock hazard when using a "hot chassis" type TV receiver.

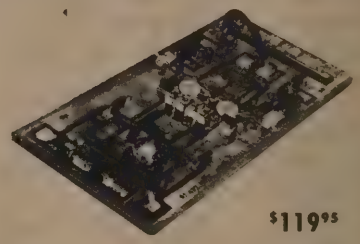
$34.95



SIL-K Complete Kit—includes a detailed instruction manual; printed circuit board and all electrical components. Kit does not include case, speaker and regulated power supply (10 to 15 volts @ 250mA).
SIL-PCB Printed circuit board only **$10.00**

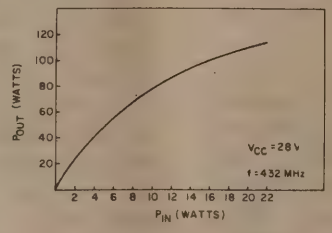
100 Watt Linear Amplifier

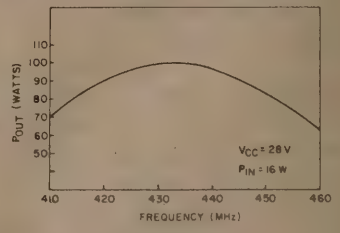
Now you can get on the air with a high power 100 watt class B linear amplifier for SSB-FM or ATV on the 420 to 450 MHz band and still not spend a lot. This kit is described in Motorola engineering bulletin EB-67 and is available in a number of configurations. For full output, a minimum of 16 watts is required for excitation with an input SWR of not higher than 2:1. Output will maintain stability with a 3:1 collector mismatch at all phase angles. A designed-in low-pass filter suppresses the 2nd harmonic to at least 63 dB down. An external power supply capable of providing 28 VDC, regulated, at 10 amps is also required.



$119.95

KEB-67-PK Kit includes detailed step-by-step instructions, printed circuit board, and all electronic components as shown.
KEB-67-PCB Printed circuit board only **$14.00**
KEB-67-I Instruction manual only **$5.00**





P.C. Boards

The FCC does not allow us to sell Broadband RF amplifier kits in the HF range, therefore we can only offer the printed circuit board and parts on a piece-by-piece basis.
140 watt power amplifier as described in Motorola engineering bulletin EB-63. **EB-63-PCB**
100-180 watt power amplifier as described in Motorola application note, AN-762. **AN-762 PCB**
300 watt power amplifier as described in Motorola engineering bulletin EB-27A. **EB-27A PCB**
Transformers, transistors and other parts are also available.

We also specialize in hard-to-find components.

In addition to our kits, we also stock parts for other Motorola application notes and engineering bulletins. We have an in-depth stock of Motorola VHF and UHF transistors, Underwood metal clad mica capacitors (Unelco), Kemet chip capacitors, Cambion RF chokes and Ferroxcube Ferrite beads and RF chokes plus other difficult to find parts. If you are having trouble finding a part, call us, we probably have it in stock.

"NEW PRODUCTS ARE COMING! WATCH FOR DETAILS...."

VISA master charge

Communication Concepts Inc.

2648 North Aragon Ave. • Dayton, Ohio 45420 • (513) 296-1411

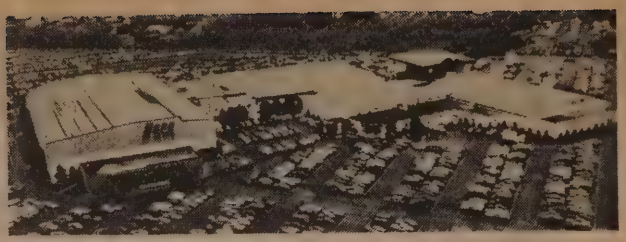
W8BI ATV REPEATER HOSTS FSTV 1984 HAMVENTION ACTIVITY!

439.25 In/426.25 Out With On-Carrier Input

DAYTON 1984 not only saw the invasion of over 20,000 Radio Amateurs but hundreds of "HAM-TV" operators as well. Some ATV'ers assembled "live" FSTV stations from Hotel/Motel rooms/lobbies and worked each other either simplex or thru the W8BI ATV Repeater system. Here is a followup description of Dayton's ATV Repeater.

The DAYTON AMATEUR RADIO ASSOCIATION ATV REPEATER is an "in band" repeater with full color capabilities. It has vestigial sideband commercial quality output, at 426.250 Mhz video, and a 430.750Mhz audio sub carrier. The main input is 439.250Mhz. video and on-carrier audio. W8BI/R has been "on-the-air" since April 20th, 1979. The repeater is located about 10 miles south of downtown Dayton, with its tower at a ground elevation of 1020 feet. The receiving antenna is at the 140 foot level, with the transmitting antenna at the 90 foot level. Both antennas are vertical polarized, and feed with 1/2" heleax. The repeater has a 45 mile coverage area, and an output power of 20 watts average at this time. This will be increased to approximately 200 watts output this summer. Their is a two-meter audio input at 147.45Mhz for the repeater and a second video/audio input at 1245.0Mhz, with 4.5Mhz audio sub-carrier. The 1245.0Mhz reciver is switchable by touch-tone signal on the two meter input to a "link" frequency, to receive the color weather radar signal from WKEF-TV, Channel 22, weather radar processor. This enables hams to view the weather radar full time when there is "bad" weather in the area. The remote base was constructed, installed by Bruce Jaquish, WB8UGV.

Another output will be in operation this summer on 1287.0Mhz video, with a 4.5Mhz audio sub carrier. The repeater is also being converted for controlling by a Vanderbilt K-9873 microcomputer controller. There are a number of "user" functions on the repeater. The sending touch-tone 5 for 5 seconds the weather radar remote base will be turned on and the 1245Mhz receiver will switch to the link frequency. If the repeater should "time out", it can be reset by sending a *, and when reset the repeater will send out a warbel tone. The 439.25Mhz video receiver can be turned on by sending a 8, which operates the video switch. This can be latched on by sending a #8. Sending a # tone will latch the repeater on for about 3 minutes. This is resetable by the * tone too. Sending a 56 will operate the video switch for the 1245Mhz and turn the repeater on for a short time. The * resets this too. The # sign latch up of the repeater for 3 minutes is very good for tuning receivers, antenna alignment etc. The * tone will reset all user functions. There is also control ability on the repeater, it can be disabled. The transmitter turned on, the receivers turned off one at a time, the time out timer disabled for sending video tapes, etc. The frequency of the 1245Mhz receiver can be adjusted, as the converter now in use drifts badly with temperature changes, and also the 1245Mhz recveiver can be switched to two antennas.

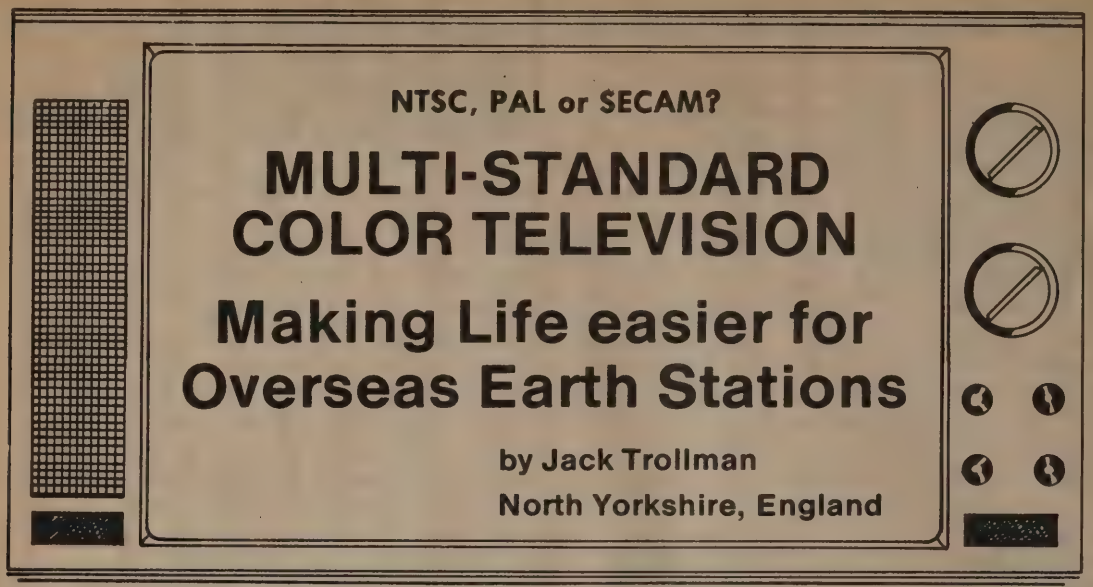


Does your club/group have or building a ATV repeater? We would like to hear from you, and exchange information, equipment data, etc. about ATV repeaters. Our club newsletter editor will swap newsletters also. Send information to Stephan G. Stith, WA8MCH ATV Repeater Chairman, 9373 Sheehan Rd. Dayton, Ohio 45459.

The D.A.R.A. ATV Repeater "Parts List"; (1). Receive antenna. Phelps Dodge model 455-589. 10 dbi gain. (2) Interdigital filter. 4 pole, ref March 1968 QST, with bars 1/8" shorter. (3) Pre-amp. Lunar Electronics model PA432-2. 1.3db n.f. (4) Same as number 2. (5) Down converter. Spectrum International Model MMc438-Ch3. (6) Spliter, two way. Wineguard model L2-27. (7) 439.25Mhz. Audio Receiver. VHFEngineering RX-50CM tuned for 61.25Mhz. (8) Two meter RX ant. Homebrew.(9) Video Demodulator. Jerrold Model DM-283. (10) Video ID. Homebrew, 4 line character generator, with clock. (to be replaced with processor with 12 pages of information). (11) CW audio ID. Spectrum Communications model ID250, with audio mixer. (12) Two meter receiver. Spectrum Communications SCR 100. (13) Audio Mixer. Part of number 11. (14) Video Switch. Homebrew. (15). Video Modulator. Blonder-Tongue Lab. model AVMTa 4923 CH3. (16) Up-converter. Spectrum International model MMt426-CH3. (17) Isolator. Decibel-Products model DB-4321, 150 watts. (18) Same as number 2, but with bars 1/16" longer. (19) Power Amp. KLM PA 10-70CL, 20 watts average output. (20) Isolator. Decible Porducts model 4324, 350 watt. (21) Same as number 18. (22) Transmitt Ant. Decibel Products Model DB-410, 9.2dbd gain. (23) 1245Mhz Down converter. P.C. Electronics model TVC-12a. (not recommended for this use). (24) Frequency control. Homebrew, switches the receiver from 1245Mhz to the Weather radar link frequency. (25) Demodulator. Sharp model XR-2134 Receiver/Monitor. (to be replaced with same as number 15). (26) Exciter. P.C. Electronics TXA5 4.5Mhz sound sub-carrier gen. (27) Amplifier. P.C. Electronics Model PA5. (28) Varactor tripler. 429 to 1287Mhz. Spectrum Communications. model MMv1296. (29) and (30) Antenna. homebrew, 6db gain.

Weather Radar Remote Base Parts List; (1) Receive antenna. 6 elm. 420-450 antenna. (2) Receiver. Spectrum Communications Corp. model SCR 450. (3) P.L. Detector. Communications Specialists model TS-32. (4) Timer, control. Spectrum Communications model CTC100. (5) CW ID, audio mixer. Spectrum Communications model ID250. (6) 4.5Mhz sub-carrier, P.C. Electronics model FMA5. (7) Transmitter. P.C. Electronics model TXA5. (8) Amplifier. P.C. Electronics model PA5. (9) Varactor Tripler. Spectrum International Inc. Model MMv1296 (Varactor tripler is mounted at transmitt antenna). and (10) Antenna. Spectrum International Inc. model 1296-LY.

USATVS Member Dr. John Fox WB2LLB/4 has addressed the subject of multi-standards used in worldwide TV programming. Jack Trollman carries on this discussion in a May Satellite TV article. We present it here for consideration of the HAM-TV enthusiast. -A5



NTSC, PAL or SECAM?

MULTI-STANDARD COLOR TELEVISION

Making Life easier for Overseas Earth Stations

by Jack Trollman
North Yorkshire, England

It wasn't long ago when installers of earth stations that were targeted on multi-nation satellites, such as Intelsat, were faced with the real problem of providing full color reception from all available transponders. Depending on which nations were transmitting on a particular satellite, up to three noncompatible video systems: NTSC, PAL, and SECAM, could be encountered, in addition to a multiplicity of audio transmission formats. The audio problem obviously meant more complex satellite receivers, but the differing video standards made things very awkward. If a customer could be convinced to settle for black and white reception, life was relatively simple. However, a little technical training was still required. A tweak of the horizontal and vertical hold controls (which newer television sets don't have) to accomodate different frame and line rates, and you were in business; at least it would get you a stable picture. An adjustment of the height control was also required, if the switch was between, say, 525 line NTSC and a 625 line system. This whole scenario was fine for the experimenter, but it was not at all satisfactory for the non-technically oriented consumer. Neither is purchasing one video monitor for each standard particularly cost effective, nor practical, from the user's standpoint.

Japan, Inc. to the Rescue

With all of the innovations in video seeming to come out of the Far East these days, it was not surprising to see a solution to the multiple-standard problem coming from that part of the world, as well. This has not been driven so much by the proliferation of home satellite equipment outside of North America, as an unfulfilled market segment, generated by the many temporary North American residents in foreign countries, who pack up and move every few years. It is estimated there are more than one million U.S. citizens overseas at any given time. These folks would be far more likely to buy a TV set to receive local transmissions, if they could take it home, or to their next location, without it becoming useless due to incompatible video transmission standards. Increased modularization of key TV circuits into integrated circuit packages now makes it practical for manufacturers to incorporate video and audio demodulation capability for all three major systems, NTSC, PAL and SECAM, into one receiver, and sell it for nearly the same price as a single-standard model.

In my recently acquired, 26-inch Sharp DV-262SPN, not only were the three standards above included, but also a universal line voltage power supply that needed no manual selection of AC input voltage. In the past, a switch or plug on the back of almost all Japanese equipment required one to manually select the power line voltage for the local area. Not so with this set. All you have to do is plug it in and turn it on. The power supply automatically adapts to whatever voltage or line frequency you feed it. Clever, eh?

Changing between local PAL channels and my NTSC VHS tape machine takes only the push of a single button on the remote control. Internal circuitry recognizes the signal standard being fed to it, and the appropriate demodulator takes over. This makes possible some interesting quality comparisons, between live, 625-line PAL and VCR-recorded, 525-line NTSC video (PAL always won).

The availability of these receivers makes the life of the overseas TVRO marketer much easier. A wide selection of multiple-standard receivers is now available from a number of manufacturers, all the way from 2-inch, black and whites, to 40-inch, floor model projection systems.

Summarized on page 57 are some of the recent offerings and their key attributes. The problem a would-be buyer will run into, is the lack of stock anywhere in North America. Since no real market exists for multiple-standard models in that "all NTSC world," special orders will probably be necessary, from distributors or the manufacturer. At least you'll know they're out there.

MULTI-STANDARD TELEVISION SETS CURRENTLY AVAILABLE

BLACK & WHITE

Model	Screen Size (in. diagonal)	Systems	Price Class ($)
Panasonic TR 1215X Portable	12	NTSC/PAL	94
Sanyo TPM 2170 Portable TV/AM/FM clock radio	2	NTSC/PAL	160

COLOR

Model	Screen Size (in. diagonal)	Systems	Price Class ($)
Hitachi CMT-2080 Tabletop	20	NTSC/PAL/SECAM	500
Hitachi CMT-2083 Tabletop	20	NTSC/PAL/SECAM	650
Hitachi CMT-2683 Tabletop	26	NTSC/PAL/SECAM	900
NTSC standard, using 3.58 or 4.43 MHz chrominance frequencies; PAL standards B, G, and I; or SECAM standards B and G. All including electronic tuning, with remote control, and separate audio and video inputs.			
JVC AV-20ME Tabletop	20	NTSC/PAL/SECAM	550
7255 ME Tabletop	14	NTSC/PAL/SECAM	330
7755 ME Tabletop	20	NTSC/PAL/SECAM	420
All include electronic tuning, and separate audio and video inputs.			
Panasonic TC 4000 E Projection	40	NTSC/PAL/SECAM	2300
Panasonic TC 26 NPR Tabletop	26	NTSC/PAL	620
Panasonic TC 224 NPR Tabletop	20	NTSC/PAL	430
Panasonic TR 1215 X Portable	12	NTSC/PAL	94
All include electronic tuning. TC 4000 E and TC 26 NPR have separate audio and video inputs.			
Philips 20 CT-3130 Tabletop	20	NTSC/PAL/SECAM	415
Philips 20 CT-3430 Tabletop	20	NTSC/PAL/SECAM	470
Philips 26 CT-9430 Tabletop	26	NTSC/PAL/SECAM	700
All include electronic tuning. None have separate audio and video inputs			
Sanyo CTP3467N Tabletop	14	NTSC/PAL/SECAM	398
Sanyo CXM7065 Tabletop	22	NTSC/PAL/SECAM	479
Sanyo CXM6065R Tabletop	20	NTSC/PAL/SECAM	not avail.
Sanyo CXM6055RH Tabletop	20	NTSC/PAL/SECAM	not avail
Sanyo CTP64671 Tabletop	20	NTSC/PAL/SECAM	496
Sanyo CTP64681 Tabletop	20	NTSC/PAL/SECAM	568
All have electronic tuning, and CTP 64671 and CTP 64681 have automatic brightness control. CXM6065R, CXM6055R and CTP 64681 have remote controls. Only CXM7065, CXM6065R, and CXM6055RH have separate audio and video inputs.			
Sharp C2002P Tabletop	20	NTSC/PAL/SECAM	455
Sharp DV1400SPN Tabletop	14	NTSC/PAL/SECAM	388
Sharp DV1600SPN Tabletop	16	NTSC/PAL/SECAM	432
Sharp DV2100SPN Tabletop	20	NTSC/PAL/SECAM	614
Sharp C262SPN Tabletop	26	NTSC/PAL/SECAM	656
Sharp DV262SPN Tabletop	26	NTSC/PAL/SECAM	725
DV262SPN has separate audio and video inputs.			
Sony KV-2062AEB Tabletop	20	NTSC/PAL	540
Sony KV-2024AEB Tabletop	20	NTSC/PAL	520
Sony KX-20 PSE Tabletop	20	NTSC/PAL/SECAM	663
All have electronic tuning. KV-2024AEB includes automatic brightness control.			
Toshiba C2647QBP	26	NTSC/PAL/SECAM	790
Toshiba C2057QBP Tabletop	19	NTSC/PAL/SECAM	400
Both have remote controls and automatic brightness controls.			

For additional information on the characteristics of world television systems see:

"CCIR Report 624-2," published in **Volume XI of the 15th Plenary Assembly of the CCIR (Geneva 1982)**, by the International Telecommunications Union, Place des Nations, CH 1211 Geneva 20, Switzerland.

This is a specialized publication, and is generally only found in larger, technical libraries.

Easier yet, find yourself a copy of **World Radio TV Handbook**, published by Billboard Publications, Inc., 1515 Broadway, New York, NY 10036. This is available from any good technical book supplier, and provides a good summary of video standards, as well as a list of the standards in use in all countries.

AMATEUR TELEVISION

NOW MORE STANDARD FEATURES . . . . STILL $399 DELIVERED

TWO FOR $750

ALL YOU NEED IN ONE BOX

TC-1 PLUS

SEE WHO YOU ARE TALKING TO! Show the shack, describe projects, run video tapes, computer programs, etc . . . in full color, sound, and in live action.

STANDARD FEATURES:

- **OVER 10 WATTS PEP RF OUTPUT.** Crystal controlled continuous duty transmitter. Specify 439.25, 434.0, 426.25 standard or other 70 cm freq. 2 freq option add $26.
- **BASE, MOBILE, or PORTABLE.** Use the builtin AC supply or external 13.8 vdc at 3 amps.
- **TWO VIDEO AND AUDIO INPUTS** for camera, VCR, or computer. Wide bandwidth for high resolution broadcast quality color video or computer graphics. Standard broadcast subcarrier sound which is heard thru the TV speaker. On-carrier audio optional at $40.
- **RECEIVE ON YOUR STANDARD TV SET** tuned to channel 3 or 4. Sensitive varicap tuned downconverter covers simplex and repeater freq over the whole 420-450 mHz 70 cm amateur band. Low noise NE64535 preamp stage.
- **VIDEO MONITOR OUTPUT** of your transmitted picture makes video gain, lighting, etc. adjustments easy & accurate.
- **ATTRACTIVE 10½ x 3 x 9 CABINET.**

SO WHAT ELSE DOES IT TAKE TO GET ON ATV?

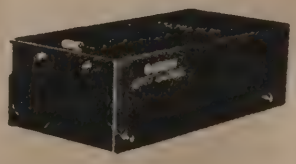
Any standard TV set is used as the receiver. The TC-1+ downconverts the 70 cm ham band down to channel 3 or 4. Just connect a short coax from the TC-1+ to the TV sets antenna input.

Any source of standard 1 volt composite video, such as is found in portable color or black and white cameras, VCRs, or computers can be plugged into the TC-1+ and transmitted to another station. Repeat SSTV to local ATVers. Audio can be from a low Z dynamic mic, or line level from cameras, VCRs, computers, etc.

The antenna is really the secret to success with ATV. We suggest the MBM 48/70 J Beam antenna with its high 14 dbd gain and wide bandwidth, and some of our Saxton 8285 low loss coax between it and the TC-1+. Antenna heigth at or above the tree tops makes a big difference.

Its really quite simple to have your own TV station capable of sending and receiving video 15 to 100 miles and more. DX with this set up is similiar to 2 meter FM with omni antennas.

THATS IT! It's easy!



ACCESSORIES:

KLM 440-27 14dbd 70cm beam antenna	$89 del.
450 AEA Isopole omni antenna	$59 del.
Saxton 8285 low loss 50 ohm coax, 100 ft.	$41 del.
Mirage D1010N 100 watt pep all mode amp	$289 del.
Hitachi HV62U black and white TV camera	$179 del.
Hitachi GP-8 8:1 zoom color camera	$749 del.

If you wish to build your own system, see module page. The TC-1+ contains the TXA5, PA5, FMA5, TVC-2L, & DM-1 module functions.
Tech class or higher license required for purchase. Normal shipment within 2 days on charge card or postal money order.

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TOM W6ORG MARYANN WB6YSS

CHANNEL 20

Build Your Own ATV Station With These Few Modules

The Basic 3 Transmitting Modules (buy all 3 save $8) . . . $199

TXA5-5

PA5

FMA5

1. **TXA5-5 ATV EXCITER/MODULATOR ..... $89 del**
   Wired and tested module provides 80 mw to drive PA5 10 watt power amp. High/low power switch for normal 10 watts with PA5, or adjustable for high power amps such as Mirage D1010N. Accepts standard 1 volt composite video from color camera, VCR, computer, etc. Wideband modulator gives excellent color and high resolution. Built in sync expander. Draws 70 ma at 13.8 vdc. One crystal included, but 2 freq requires another crystal at $15. We stock 439.25, 434.0, & 426.25 mHz, other 70 cm freq may take 3 weeks. CA-1 on-carrier audio module add $30.

2. **PA5 10 WATT PEP ATV POWER MODULE ..... $89 del**
   A Motorola MHW-710-2 is mounted on a heat sink with stripline PC board to give over 10 watts pep video when driven by the TXA5. 50 ohms in and out. Broadband, covers the entire 420-450 mHz 70 cm band with no tuning. Draws a little over 2 amps at 13.8 vdc reg.

3. **FMA5 AUDIO SUBCARRIER GENERATOR ..... $29 del**
   Transmits broadcast standard sound with your picture. Accepts a low Z mic (100-600 ohms). also line level audio from VCRs, camera mics, computers, etc. Up to 1 v p-p drive to the TXA5, VM-2, or VM-4 modulators. Works with any transmitter with 5 mHz modulation bandwidth. Draws 20 ma from 13.8 vdc supply.

All modules can be run from a 3 amp 13.8 vdc regulated power supply. A good UHF T/R relay should be used, we stock the Magnacraft W120X-14 at $44 delivered. The modules should be mounted in an aluminum chassis or cabinet for heat sinking and shielding. See chapter 14 of 1983 ARRL Handbook.

420-450 mHz ATV RECEIVING DOWNCONVERTERS

TVC-2

TVC-2G

TVC-4

TVC-2 ATV DOWNCONVERTER ..... $49 delivered
Wired and tested module connects between 70 cm antenna and TV set tuned to channel 2, 3, or 4. Varicap tunes the whole 420-450 mHz amateur band. Sensitive MRF901 preamp, stage digs out the weak ones and the hot carrier double balanced mixer resists intermods and overload. Requires +11 to 18 vdc at 20 ma.

TVC-2L more sensitive with NE64535 preamp stage ..... $59 del

TVC-2G most sensitive with GaAsFet (.5db NF) stage ..... $79 del
It can be mounted in the shack, but is designed for antenna mounting for best sensitivity (Besides low noise figure, you gain the feedline loss). Has extra double tuned bandpass filter to reject strong UHF TV stations.

DCB DOWNCONVERTER CONTROL BOX ..... $59 del
Provides variable 10 to 18 vdc thru coax to antenna mounted downconverters such as TVC-2G and TVC-12G. Also has 15 db gain line amp to drive long lines or splitters. Ready to go, comes in same cabinet as TVC-4.

TVC-4 PACKAGED DOWNCONVERTER with AC supply . . . **$89 del**
Contains the TVC-2, 120 vac supply, ready to go. BNC antenna input and F connector TV output. Handy for ATV demos, or community TV systems outside of the USA. Size is 5.3 x 2.5 x 7 inches.

TVC-4L contains the more sensitive TVC-2L. ..... $99 del

***Attention clubs, groups and exporters ..... the following quantity discounts apply to one module ordered at one time and sent to one address: 5-24 10%, 25-49 15%, 50-99 20%, 100-up 25%.**

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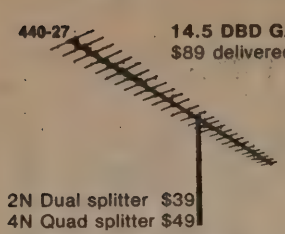
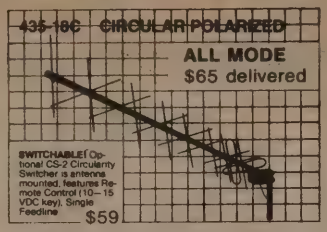
KLM BROADBAND ANTENNAS FOR ATV

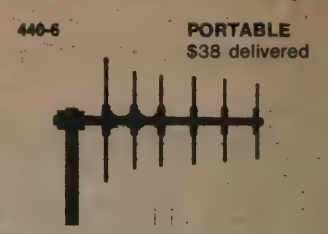
NEW!



BANDWIDTH:	420-450 MHz	BOOM LENGTH:	12 ft
GAIN:	14.5 dBd	VSWR:	1.2:1
BEAMWIDTH:	36°	FEED IMP.:	50 ohm unbal
WT. (LBS.):	7.5	BALUN:	1:1 2KW
MOUNT/MAST DIA.:	Center/1½"		


435-18C CIRCULAR POLARIZED
ALL MODE
$65 delivered
SWITCHABLE Optional CS-2 Circularity Switcher is antenna mounted, features Remote Control (10–15 VDC key). Single Feedline
$59

BANDWIDTH:	420-450 MHz	GAIN:	12 dBdc
BOOM LENGTH:	7.3 ft.	VSWR:	1.5:1
BEAMWIDTH:	44°	FEED IMP.:	50 ohm unbal.
WT. (LBS.):	4.5	BALUN:	2-4:1, 1KW
MAST DIA.:	Cen-Rear/1½"	Ellipticity:	3dB MAX.



BANDWIDTH:	420-470 MHz	BOOM LENGTH:	2 ft.
GAIN:	8 dBd	VSWR:	1.2:1
BEAMWIDTH:	80°	FEED IMP.:	50 ohm unbal.
WT. (LBS.):	1.2	BALUN:	1:1, 2KW
MOUNT/MAST DIA.:	Rear/1½"		

LOW LOSS COAX. 50 ohm Saxton 8285 foam RG8 type ..... 100 ft roll . . . **$41** ppd
Only 3.5 db/100' loss at 400 mHz. Tight 95% shield.

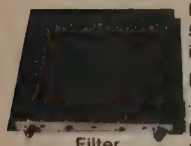
AEA 450 ISOPOLE OMNI GAIN ANTENNA ..... **$65** delivered.
High efficiency decoupling cones puts all the RF on the horizon where it counts. Great for local ATV round tables, portable with the Kreepie Peepie system, public service, FM remote base and repeaters. Ready to connect to your coax N connector and 1¼" mast. Low wind loading and DC grounded for ruggedness.

1200 MHZ ATV SYSTEMS
How about full duplex a atv? There are 5 atv channels on the 23 CM band starting at 1241 mHz with 12 mHz spacing available for repeater outputs, links, etc. Repeater output on this band with input on 70 CM lets you see your own video come back. Watch for our new KPA5-12 1 watt ATV transmitter to be out soon!

TVC-12G GaAsfet 23 CM DOWNCONVERTER ..... **$89** ppd
Sensitive GaAsfet remote varicap tuned 1215-1300 mHz to TV channels 7 or 8. Mounts on F9FT antenna to save feedline losses. Powered and tuned with 10-18 vdc thru coax from DCB control box. DCB Control Box with IF amp ..... **$59** ppd.

F9FT TONNA 23 Element YAGI ANTENNA ..... **$49.50** ppd
16.3 dbd measured gain, 5'10" boom, with N connector. Quad stacking frame and 4x splitter ..... **$150** ppd

BUILD YOUR OWN ATV REPEATER WITH THESE BASIC MODULES:


Filter

PSF438-ATV INTERDIGITAL VESTIGIAL SIDEBAND FILTER ..... **$132.50** ppd
5 mHz bandwidth for good color and sound but rejection for no desense. Copper plated 7 pole for typ 1.3db insertion loss.

MMC439-ATV CRYSTAL CONTROLLED DOWNCONVERTER ..... ch 3 IF . . . **$84.95** ppd
. . . 45.75 mHz IF $99.95 ppd. low noise MRF901. 30 db gain.

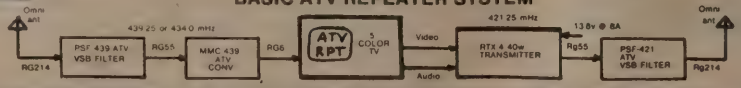
RCM-3 REPEATER CONTROL MODULE. Detects horiz sync to key up xmtr. Timers to key effects boards: IDers, test pattern, etc. Bare P.C. Board . . . **$15** ppd ..... Wired & tested . . . **$49** ppd

RTX-4 40 WATT PEP ATV REPEATER TRANSMITTER ..... **$799** ppd
Crystal controlled on 421.25 mHz. 7" high 19" rack panel contains shielded KPA5 exciter, VOR video operated relay, Mirage D24 amp, and fan. Req. reg 13.8 vdc at 8 amps and 120 vac.

RTX-4

NEW!

BASIC ATV REPEATER SYSTEM



SEE Chapt. 11 of "EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT AMATEUR TELEVISION" book for complete repeater info . . . adding special effects, mixing two meters, getting rid of desense and interference from other transmitters at the same site, and special considerations with video operation.

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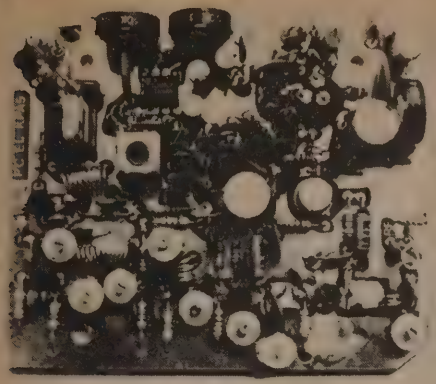
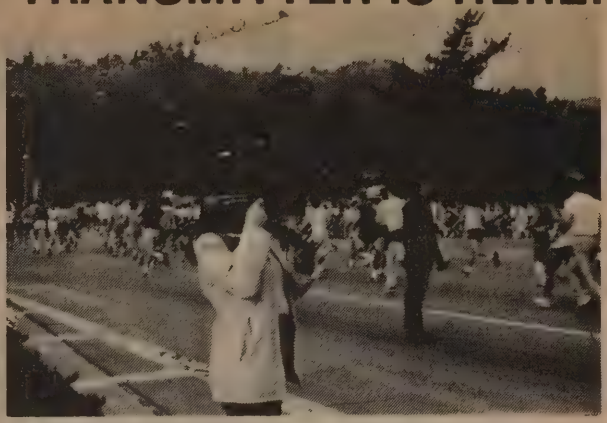
THE "KREEPIE PEEPIE" ATV TRANSMITTER IS HERE!





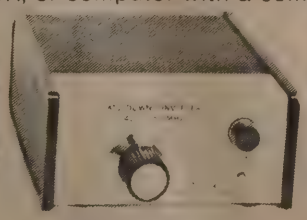
KPA5 1 WATT ATV TRANSMITTER BOARD FEATURES:

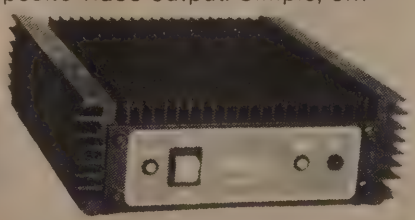
- 1 watt pep minimum RF output on sync tip.
- Full color and sound on one small 3.25 x 4" board.
- Composite video input from camera, VCR, etc.
- Runs on external 13.8 vdc at 300 ma supply or battery.
- Wired and tested board covers 421 to 439 mHz.
- Supplied with one xtal on 426.25, 434.0, or 439.25 mHz but capable of 2 freq operation with the addition of 2nd xtal (add $15). Other 70cm freq. available on special order.
- Mic input from a low Z dynamic and line level audio input found in most portable color cameras, VCRs, or home computers provided.
- Schematic and application notes supplied for typical external connections, packaging, and system operation.
- Price delivered via UPS surface in the USA is only **$159.** Technician class amateur license or higher required for purchase and operation.

DO SOME OF THESE APPLICATIONS INTRIGUE YOU?

1. PORTABLE CORDLESS TV CAMERA. No heavy VCR to lug around or cable length limitation. You can even use your home VCR rather than a portapak. Now you can creep around and peep thru your camera more easily. Gives good pictures up to a mile with simple whip, and 40 miles using beams in flat terrain.
2. MOBILE OR PORTABLE ATV for public service events such as races, parades, marathons, etc. A Mirage D24 40 watt amp can be added for greater mobile coverage or base operation. Mount in an airplane for CAP and rescue searches for an eye in the sky.
3. REMOTE CONTROL OF R/C AIRPLANES or ROBOTS. Fly with a camera in the nose to control as if you are in the plane. Likewise a robot can now be out of site of the operator.
4. REPEATER SITE SECURITY OR COMPUTER VIDEO DISPLAY. Turn on thru your repeater a camera at the site to see the area, weather, read meters, or if a computer is used, show status, play games, etc. by remote control. With all the new technology using TV displays, it is natural for hams to adapt these new products to transmission over the air. What applications come to your mind?

VHAT IS REQUIRED FOR A COMPLETE OPERATION SYSTEM? A TV set with a TVC-2 or TVC-4 420-450 mHz to hannel 3 downconverter, 70 cm antenna, and coax cable to receive. Package up the KPA5, add 12 to 14 vdc, antenna, nd any tv camera, VCR, or computer with a composite video output. Simple, eh?





CCESSORIES:

owncconverter: TVC-2 wired & tested board $49
Varicap tuned. Requires +11 to +18 vdc at 20 ma.
VC-4 (TVC-2 in cabinet with ac supply $89
more sensitive "L" versions with NE64535 preamp
stage add $10.

Mirage D24 1 in / 40 watts out all mode amp. $179
450 ISOPOLE omni gain 70cm antenna $65
KLM 440-6 8 dbd gain 60° beamwidth antenna $38
KLM 440-27 14.5 dbd gain broadband 70cm antenna ... $89
100' roll Saxton 8285 50 ohm low loss coax $41
VOR Video Operated Relay board $25

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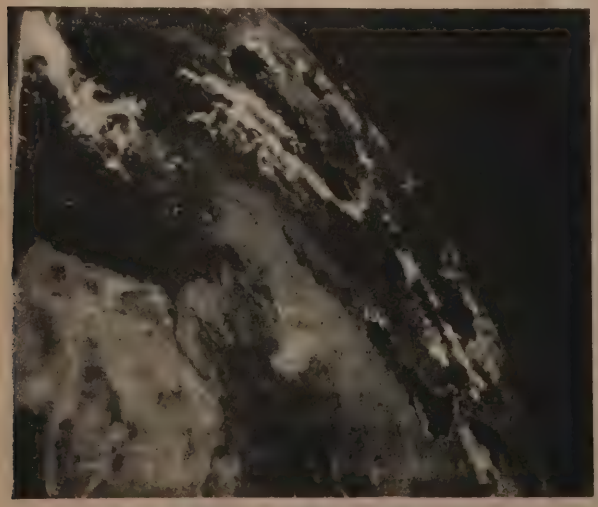
"A5" REVIEWS THE WRAASE FX-665 FAX CONVERTER

The FX-665 Wraase Digital TV Facsimile Scan Converter is designed for those radio electronic hobbyists interested in monitoring HF, VHF and Microwave frequency broadcast FAX signals in a "silent video display" form. It is a high-resolution converter displaying 256 pixels per line by 256 lines by 64 grey shades to a regular 75 ohm (BNC output) TV Monitor. This high-density visual resolution produces excellently detailed FAX photographs.

786,432 bits allow two 256X256X64 memories (12-4164's) available for alternative picture storage capability with a special automatic scanning position that quickly displays back and forth from memories A and B allowing simulated weather map blowups or advancing cloud/storm formations to be seen just like on the 10 o'clock news! Selectable AM/FM demodulation is available with an automatic 300 hz. START and 450 hz. STOP signal recognition frequency. Both receiver and tape jacks (and cables) are supplied with the FX-665 unit. The tape circuitry allows both in/out flow direction of the received generated FAX signal. A special RGB Color jack is available with Pin 1-for +12 vdc, Pin 2-Ground, Pin 3-Green, Pin 4-Blue and Pin 5-Red. A power supply feed system is required for the FX-665 unit at 13.8VDC with a current draw at only .8 AMP, making it a true portable FACSIMILE unit which when teamed with an external DC Voltage power supply and 12 vdc TV monitor allows all types of flexible capability.

Almost all popular speeds of FAX frequency RF signals can be copied using different combinations of the 120/240 speed switch and tuneable SYNC WIDTH CONTROL. Individual front panel BRIGHTNESS and CONTRAST controls allow correct picture tuning without major frequency adjustment of the receiving VFO. Other front panel controls include AM/FM, Memory 1-2/Alternative, Vertical Width 1/3, 2/3, 1/2, and 1, 300/840 hz SYNC, Phase button, STOP/START display, UP/DOWN Monitor Feed, Power DC On/Off, Horizontal Width, TAPE/DIRECT and a NOAA/METSAT select switch. Special BLACK/WHITE blinking tuning LED's are provided for "on frequency" operation reliability.



Actual Global Photos on Wraase FX-665 Converter

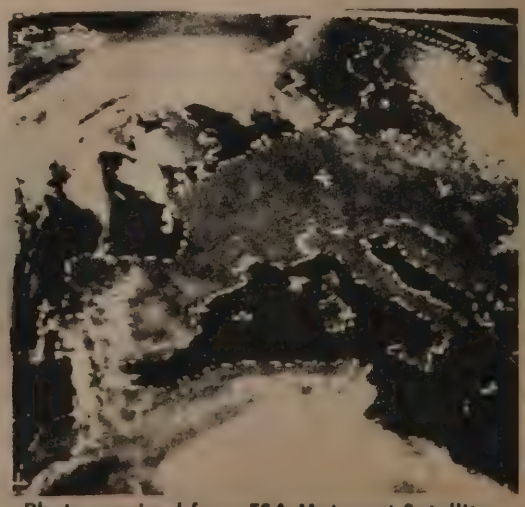


Photo received from ESA-Meteosat Satellite
CHANNEL 24

The WRAASE FX665 unit has a total of 68 IC's, 4 Transistors and 36 Diodes all assembled on quality printed modular circuit boards housed in a very small and attractive black (with silver front panel) that measures 4 inches high, 12 inches wide and 7 inches deep. The WRAASE FX665 when teamed with the about to be released MITSUBISHI P50U video printer would make an excellent combination FAX video display and hardcopy printer output. A 15 page manual (originally written in German) complete with full page electrical schematics and system block diagrams is supplied with each unit. Retail Price on the WRAASE FX665 FAX Converter imported from Germany is $895.00 which includes a 4.4% CUSTOMS DUTY FEE. Units can be shipped directly to the CUSTOMERS home from Germany. Replacement parts, boards, etc. can be obtained with service in the U.S.A. from International Sales and Marketing (See A5 IBC Ad).

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W-6	RS 232 for TRS-80	$ 2.50	$ 5.00
W-7	Serial to Parallel MX-80	$6.50	$38.00
W-8A	Video Amp for TRS-80C	$ 6.00	$12.00
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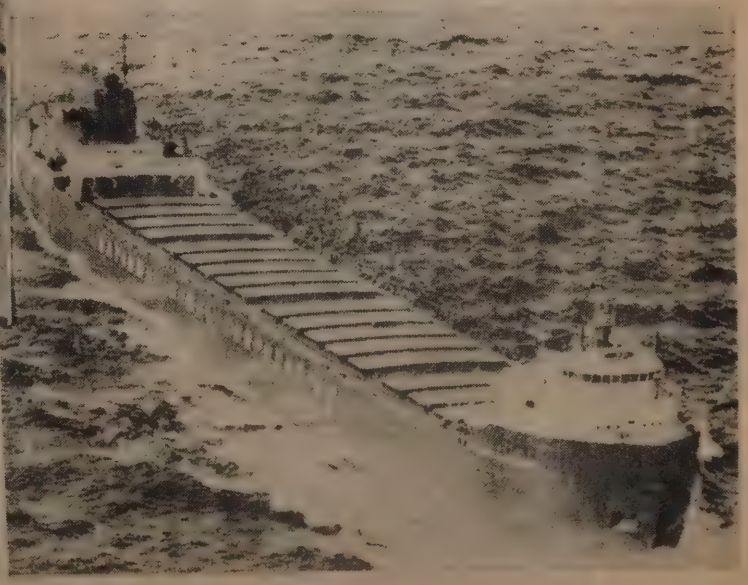
These FAX Pictures were sent over 2 Meters between WA8FIB and AI8Z between Stow and Cuyahoga Falls, Ohio. Both used converted WU Deskfax 70's and include a SYNC Mod circuit. The original pictures were donated by KD8JH. Thanks WA8FIB!



"WORLDVIEW" FAX NEWSLETTER

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CRYSTAL CONTROLLED MOTOR DRIVER CIRCUIT FOR WESTERN UNION DESKFAX UNITS

by Jerome Grokowsky WA9HCZ
127 8th Avenue, South
Onalaska, Wisconsin -54650

This paper describes a crystal controlled motor driver that I built for the Western Union Deskfax machine. It has been in use at my station for over 5 years and has been completely reliable.

The stock Deskfax uses a syncronous motor to drive the drum. This motor is driven from the 60 HZ power lines and is subject to drift when trying to communicate with stations in a different power grid or with machines that use an internal standard. This "drift" manifests itself as a horizontal "skewing" of the received copy. If the drift is relatively steady then the picture will be merely tilted but if the relative drift is erratic the horizontal will be ragged.

A crystal drive will allow you to communicate with FAX transceivers that have internal standards and also allow you to have a three speed Deskfax for coyping commercial FAX and DX FAX on the Amateur bands which is mostly 120 RPM crystal controlled.

The basic speed of the Deskfax is 180 RPM. This speed is used in some other FAX machines but it is not as common as 120 RPM FAX. This is not to say I prefer 120 RPM over any other speed, but is merely a statement of what I have observed. FAX is not very common on the Amateur bands and I had to turn to the commercial signals as a source of signals for FAX experiments. If conditions are good then the higher speeds are useful, so 240 RPM is desirable because it also affords the ability to receive weather satellites.

Simple arithmetic shows that if you have 180 RPM with 60 HZ drive, you will have 120 RPM with 40 HZ drive, and 240 RPM with 80 HZ drive. A simple crystal oscillator will provide the necessary stability for a signal source and no oven is required.

Page 1 shows the signal generation part of the driver. The TTL oscillator is in the upper left part of the diagram. It is a 12 MHZ crystal (HC-6/U) and has a 100 pf capacitor in series with it for fine adjustment. I used the commercial signal of a FAX station to adjust the frequency. Simple examination of the received copy will tell you if your oscillator is fast or slow. If you have a counter or a shortwave receiver with an accurate 100 KHZ calibrator at 12 MHZ you can adjust the oscillator without too much guessing.

The 7498 dividers divide the crystal signal and a signal at 2.4 KHZ is obtained. This frequency wasused as an external signal because it was believed at one time 2.4 KHZ was used on some satellite signals. The purpose of the AGC and limiter in the lower left part of the drawing is to provide a way to drive the drum motor from an external signal. This would be needed if you were to try some FAX recording on a tape recorder. The method intended was to record the 2.4 KHZ signal on one track of a stereo tape recorder and the live FAX signal on the other track. When the tape is played back the 2.4 KHZ track is fed into the AGC amplifer and the relay is operated so that the motor runs off the external signal instead of the crystal. The signal track is fed into the FAX machine in a normal manner.

The next 7498 can be switched so that different frequencies can be generated for different speeds. The next divider outputs the final frequencies of 48-60-80 HZ. The 7400 gates generate as two phase signal for driving the emitter followers, which are to-5 type capable of dissapating a couple of watts. They have some small clip on heat sinks to keep things cool. The output of the emitter followers out put to the points "X" and "Y" which appear on the right hand side of the second diagram.

The points "X" and "Y" drive the bases of two large NPN transistors. I do not know what a suitable part number is for these transistors. They were surplus unmarked units I found in the (gulp) "junk box". They are stud mounted types apparently good for many amps. I am driving them into saturation though so maybe they would not have to be so large. I mounted them on a good sized heat sink and they do not get too hot to touch after many minutes of operation (power shut off).

The motor takes 30-40 watts of power so other power amplifiers could be used. I used two identical power transformers for my power amp. They have about 2 square inches of core. The transformer I used for the power supply (DC) is drawn with the primary in the upper part of the drawing and the secondary in the lower part. The other transformer was used as a push pull output (saturated drive). My motor driver is connected to the Deskfax so that there is always a load on the power amplifier. It is hooked to the Deskfax through a cable and gets it's A.C. power from the Deskfax so if things get unplugged everything will quit. There is a transfer switch on the motor driver so either the driver or the regular 60 HZ power can be selected for "local" contacts.

The drum motor capacitor needs to be changed if you intend to run it on different frequencies. In my unit I used a separate switch but it would be handier to have the divider switch and capacitor switch ganged together. In any case the speed change switch should only be operated when the power is shut off. If the motor capacitors are incorrect then the motor will not start by itself or it will lack torque. The values shown gave me the best results but you should be wary of the actual value of such capacitors, because the actual value can be different from the marked value. (Use paper caps, at least 200V AC).

The waveform of this driver is not a sine wave. It appears that no harm is done because of the poor waveshape. The high harmonic content of the signal did cause some hum pickup by the photo tube pickup when transmitting, but by

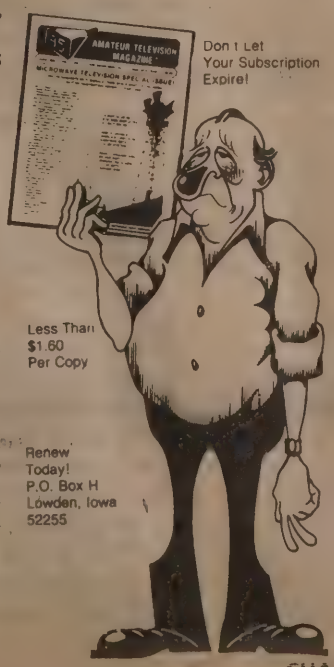
simple shielding and grounding of the photo tube circuit the hum in the picture was eliminated. Also some problems will exist in the receive mode if you use the original 600 ohm line transformer. But the problem also exists when running off the power lines so that transformer should be replaced and relocated.

(Send SASE for Actual Schematic Printouts to A5)

I made provisions to operate the feed motor from different power sources. Normally I run the feed motor from the same source as the drum motor. In this way the index of cooperation does not change with different speeds. The index for the Deskfax is around 268. It can communicate with other FAX machines whose index of cooperation is close to this figure. The commercial FAX stations are using machines who have a much higher index, and the pictures received on the Deskfax from these stations have distorted aspect ratio. Since I am already running the feed motor on 40 HZ it does not seem too practical to run it on a much lower frequency, I don't know if it would even turn. This is not too much of a problem though I hardly notice the problem, and I did not want to wreck the Deskfax feed so it could not be used in it's original form. I still like to communicate with "unmodified" Deskfax machines to encourage beginners (or anyone else for that matter).

With the feed and drum motors running on 40 HZ I was able to receive pictures from several JA stations running Panafax machines. It appears that the 40 HZ conversion results in a Deskfax that is still compatable with several current FAX machines. At 40 HZ the feed time is 220 sec., 60 HZ is still 140 sec., and 80 HZ results in 110 sec. frames. I would appreciate a S.A.S.E. for those with questions... Jerry Grokowsky WA9HCZ 127 8th Ave. S. Onalaska, WI. 54650 (608) 783-5643 Evenings.

"Catch Jerry WA9HCZ on the weekly U.S. FAX NET on 14.245 Mhz., Sundays at 3 P.M. EDT!"



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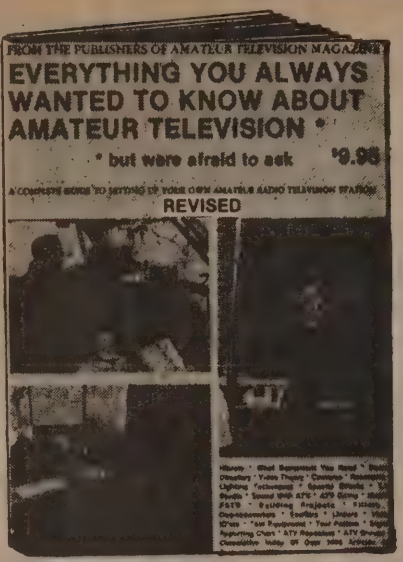
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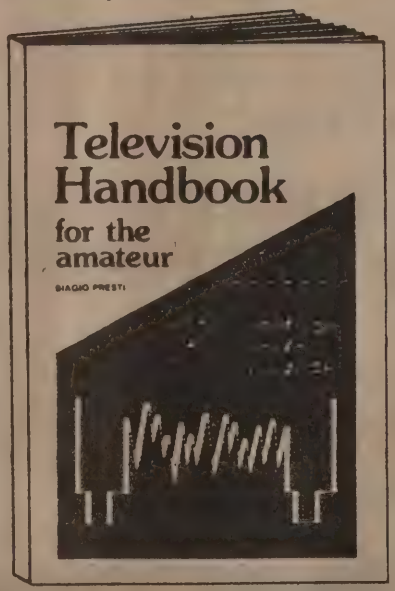

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SLOSCAN 1.1 "SAVE-IT" HARDCOPY PRINTER PROGRAM*

FOR PRINTING SSTV PICTURES ON NEC PC8023 OR C. ITOH PROWRITER 8510(A) PRINTERS

```
10 '***THIS IS A MODIFICATION OF THE SLOSCAN DISPLAY AND HARDCOPY UTILIY
20 'AS PUBLISHED IN DEC 1983 "A5" MAGAZINE.
30 'THE MODIFICATIONS INCLUDE:
40 '   1: ADJUSTMENT OF THE ASPECT RATIO
50 '   2: ADDITION OF A 2 TIMES SIZE OPTION
60 '   3: ADDITION OF SOME ASSEMBLY CODE TO SPEED UP THE PRINT
70 'THESE MODIFICATIONS WERE WRITTEN BY RON TONNESON K0QVF
80 '
90 '***SLOSCAN IMAGE DISPLAY***
100 '*** & HARDCOPY UTILITY***
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120 '(C)COPYRIGHT1983 DICK KINNEY
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140 '*****NOTICE FOLLOWS********
150 '***NOTICE: THE HARDCOPY
160 'FUNCTION OF THIS PROGRAM
170 'WILL ONLY WORK ON THE
180 'NEC PC8023 AND C.ITOH
190 'MODEL 8510 PRINTERS
200 'REFER TO SLOSCAN INSTRUCTIONS FOR INFORMATION ON USE WITH OTHER PRINTERS
210 '
220 PCLEAR8
230 CLEAR 100,&H6FFF
240 FOR I=&H7000 TO &H706D
250 READ D$: D=VAL("&H"+D$)
260 POKE I,D
270 NEXT I
280 DEFUSR0 = &H7000
290 DEFUSR1 = &H704D
300 CLS
310 PRINT:PRINT
320 PRINT"        S-L-O-S-C-A-N":PRINT
330 PRINT
340 PRINT" SSTV IMAGE RETRIEVAL & HARDCOPY "
350 PRINT"  (C)COPYRIGHT 1983 DICK KINNEY "
360 PRINT:PRINT:PRINT
370 INPUT"     PICTURE NAME ON DISK?              (HCPY=HARD COPY)";N$
380 IF N$="HCPY"THEN6OTO450
390 PMODE4,2
400 SCREEN1,0
410 LOADM N$,1024  (CLOAD FOR CASSETTE)
420 K$=INKEY$
430 IFK$=""THEN420
440 GOTO 300
450 '*******HARDCOPY PROGRAM****
460 PMODE4,2
470 SCREEN1,0
480 CLS:PRINT"  HARDCOPY OF SLOSCAN PICTURE          PREPARE PRINTER"
490 PRINT:PRINT:PRINT
500 PRINT"  TO SPEED UP PRINTOUT"
510 PRINT"  POKE 150,1 (9600BAUD)"
520 PRINT"  AND SETUP SERIAL INTERFACE"
530 PRINT"  FOR 9600 BAUD"
540 PRINT"  SMALL OR LARGE(S OR L)?"
550 K$ = INKEY$
560 IF K$ = "S" THEN 580
570 IF K$ = "L" THEN 580 ELSE 550
580 PRINT#-2,CHR$(27);"T16"
590 PMODE4,2:SCREEN1,0
600 PRINT#-2,CHR$(27);"Q"
610 PRINT#-2,CHR$(27);"L";"024"
620 IF K$ = "S" THEN 710
630 FOR K=32 TO 1 STEP -1
640 FOR I=0 TO 1
650 PRINT#-2,CHR$(27);"S";"0768";
660 A=USR0(K)
670 PRINT#-2
680 NEXT I
690 NEXTK
700 GOTO 300
710 FOR K=32 TO 1 STEP -1
720 PRINT#-2,CHR$(27);"S";"0384";
730 A=USR1(K)
740 PRINT#-2
750 NEXT K
760 GOTO 300
770 DATA 86,FE,97,6F,BD,B3,ED,8E
780 DATA 13,FF,3A,A6,84,43,7D,70
790 DATA 4C,27,04,44,44,44,44,5F
800 DATA 44,24,02,CB,03,44,24,02
810 DATA CB,0C,44,24,02,CB,30,44
820 DATA 24,02,CB,C0,1F,98,AD,9F
830 DATA A0,02,AD,9F,A0,02,AD,9F
840 DATA A0,02,AD,9F,A0,02,C6,20
850 DATA 3A,8C,2C,00,25,C5,73,70
860 DATA 4C,0F,6F,39,00,86,FE,97
870 DATA 6F,BD,B3,ED,8E,13,FF,3A
880 DATA A6,84,43,AD,9F,A0,02,AD
890 DATA 9F,A0,02,C6,20,3A,8C,2C
900 DATA 00,25,ED,0F,6F,39 "2"
910 END                    T "J"
```

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*For TRS80C Color Computer

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150 '***NOTICE: THE HARDCOPY
160 'FUNCTION OF THIS PROGRAM
170 'WILL ONLY WORK ON THE
180 'EPSON WITH GRAFTRAX
190 'AND GEMINI 10-X PRINTERS
200 'REFER TO SLOSCAN INSTRUCTIONS FOR INFORMATION ON USE WITH OTHER PRINTERS
210 '
220 PCLEAR8
230 CLEAR 100,&H6FFF
240 FOR I=&H7000 TO &H706A
250 READ D$: D=VAL("&H"+D$)
260 POKE I,D                                    <- = CHANGE MADE
270 NEXT I
280 DEFUSR0 = &H7000
290 DEFUSR1 = &H7048
300 CLS
310 PRINT:PRINT
320 PRINT"        S-L-O-S-C-A-N":PRINT
330 PRINT
340 PRINT" SSTV IMAGE RETRIEVAL & HARDCOPY "
350 PRINT"  (C)COPYRIGHT 1983 DICK KINNEY "
360 PRINT:PRINT:PRINT
370 INPUT"     PICTURE NAME ON DISK?              (HCPY=HARD COPY)";N$
380 IF N$="HCPY"THENGOTO450
390 PMODE4,2
400 SCREEN1,0
410 LOADM N$,1024  (CLOAD FOR CASSETTE)
420 K$=INKEY$
430 IFK$=""THEN420
440 GOTO 300
450 '********HARDCOPY PROGRAM*****
460 PMODE4,2
470 SCREEN1,0
480 CLS:PRINT"  HARDCOPY OF SLOSCAN PICTURE          PREPARE PRINTER"
490 PRINT:PRINT:PRINT
500 PRINT"  TO SPEED UP PRINTOUT"
510 PRINT"  POKE 150,1 (9600BAUD)"
520 PRINT"  AND SETUP SERIAL INTERFACE"
530 PRINT"  FOR 9600 BAUD"
540 PRINT"  SMALL OR LARGE(S OR L)?"
550 K$ = INKEY$
560 IF K$ = "S" THEN 580
570 IF K$ = "L" THEN 580 ELSE 550
580 PRINT#-2,CHR$(27);"A";CHR$(8)
590 PMODE4,2:SCREEN1,0
600 IF K$ = "S" THEN 690
610 FOR K=1 TO 32 STEP 1
620 FOR I=0 TO 1
630 PRINT#-2,CHR$(27);"K";CHR$(128);CHR$(1);
640 A=USR0(K)
650 PRINT#-2
660 NEXT I
670 NEXTK
680 GOTO 300
690 FOR K=1 TO 32 STEP 1
700 PRINT#-2,CHR$(27);"K";CHR$(192);CHR$(0);
710 A=USR1(K)
720 PRINT#-2
730 NEXT K
740 GOTO 300
750 DATA 86,FE,97,6F,BD,B3,ED,8E
760 DATA 2B,DF,3A,A6,84,43,7D,70 <-
770 DATA 69,26,04,44,44,44,44,5F <-
780 DATA 44,24,02,CB,03,44,24,02
790 DATA CB,0C,44,24,02,CB,30,44
800 DATA 24,02,CB,C0,1F,98,AD,9F
810 DATA A0,02,AD,9F,A0,02,1F,10 <-
820 DATA 83,00,20,1F,01,8C,14,00 <-
830 DATA 24,C9,73,70,69,0F,6F,39 <-
840 DATA 86,FE,97,6F,BD,B3,ED,8E <-
850 DATA 2B,DF,3A,A6,84,43,AD,9F <-
860 DATA A0,02,1F,10,83,00,20,1F <-
870 DATA 01,8C,14,00,24,ED,9F,6F <-
880 DATA 39,00,00 <-
890 END
```

EPSON WITH GRAFTRAX/GEMINI 10 VERSION

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THE "SAVE-IT" PROGRAM HAS BEEN MODIFIED BY RON TONNESON KOQUF OF FAIRFAX, IOWA FOR A5 ATV MAGAZINE.

***For The Radio Shack TRS80C Color Computer (Tandy Corp., Texas)**

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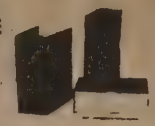

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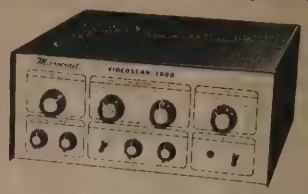

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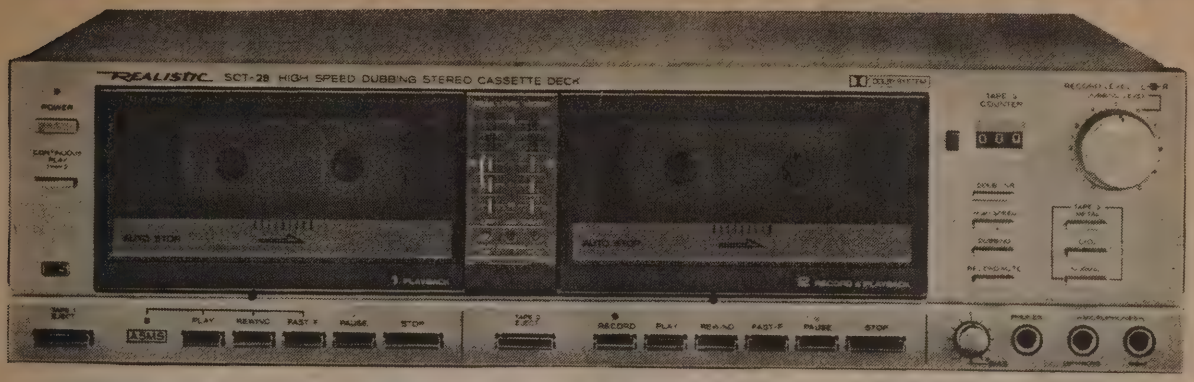

RADIO SHACK *SCT-28 WORKS WELL FOR SSTV/FAX/RTTY & COMPUTERS

RADIO SHACK Company has a great little Stereo Dubbing recorder that seems to be getting little attention. We use one here for the dubbing of Computer and Audio/SSTV tapes. The High Speed feature works flawlessly even on the critical duplication of computer tones. It works great as an SSTV and FAX recorder/playback deck as well with no noticable visual reduction in quality on playbacks. Priced at $279.00 it is not out of line for a recorder/dubber of this type. Oh yes, by the way, I almost forgot, it works well for Music as well. -WB0QCD

"A5's" COCORITY IN REVIEW BY STEVE BRUCE WA4OAA

The CoCo RTTY program that A5 Magazine is selling is an excellent program for the amateur radio operator that wants to become familar with specialized types of communication such as RTTY. The program offers the radio operator a chance to see what RTTY is about without spending an arm and a leg. This allows one to get a taste of RTTY in order to see if it is going to be his or her cup of tea before shelling out big bucks for other systems designed especially for RTTY. Wouldn't it just be terrible to spend $500 or more for a RTTY unit only to find out is isn't what you thought it was? Well, CoCo RTTY allows you to make up your own mind for only $24.95. This seems to be in keeping with the amateur spirit in that one can receive RTTY cheaply. These types of efforts should be commended.

The program isn't hard to use at all. After loading the program into my computer I proceded to hunt for RTTY signals on the 20 meter band. When I found what I thought was teletype I had to figure out how to get the audio from the radio to the black earphone jack of the computer. I could hardly wait to see if my CoCo would decode the funny sounding noises that were coming through my speaker. I made a y jack for the audio output of my rig so I could plug in my speaker and also plug in my earphone jack of the CoCo. The time was now or never. The speaker jack and the ear jack were in place. The program was already in the computer and the screen was white. Oh no. What? No RTTY? OK why not? Must not have the audio tuned on the correct frequency. Slowly turning the VFO the screen of the TV started to show letters traveling from right to left across the bottom of the screen. Then the message scrolled upward and I could read what it said. It works! I was actually seeing a RTTY message being sent. This was something I had never seen in my own shack.

Having not been familar with RTTY the tuning of the frequency was a little tricky at first, but in just a little while I was tuning in several different messages without any trouble at all. This is nice I thought to myself. Now if I could only transmit. Thinking about it for a few minutes an idea came to me. Why can't I put the audio output of the computer into the tape input of my Robot 400 SSTV unit and transmit from the tape transmit select mode? Well I turned on the SSTV rig and plugged in the computer jack into the SSTV tape recorder. I pressed the play and record buttons on the recorder and decided to give it a try.

I happened to have my two meter rig on and suddenly heard a friend about 20 miles away that I knew had RTTY transmit and receive. When he got through talking I gave him a call and told him what I wanted to do. We both tuned our rigs to the 10 meter band and he proceded to send RTTY to me. I told him on two meters the reception was perfect. Now for the time of truth. I told him I was going to try and send some RTTY from my station. He said "fire away". I keyed the mike and started typing on the keyboard of my CoCo. He said it sounded like I had RFI problems. I turned down the mike gain and proceded typing again. This time he echoed what I was typing on two meters. The experiment was successful even though the watt meter only said 7 watts.

Although this program is mainly a receive program with some work on interfacing the transmit could be made to work without the RFI problems I had. I strongly recommend that anyone who is thinking about getting into RTTY and has a CoCo first try the CoCo RTTY program distributed by A-5 Magazine. 73's Steve Bruce WA4OAA Rt.1 Box 434 Bostic, N.C. 28018

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VK7OW — Jim Davis (Noars member) one of the many DX stations worked from the COD in '83. We worked Jim in August of '83, and as you can see by the photo he was very happy to receive his COD certificate, so happy that Jim had this picture published in the local newspaper in Latrobe, Tasmania. . . . Somewhat of a homecoming for the COD via amateur radio (the U.S.S. COD operated out of Australia during the war).

N.O.A.R.S. and the U.S.S. COD will be on the air again during the summer of '84. Noars members will be operating from the COD starting Memorial Day Weekend running daily through Labor Day Weekend. Look for operations in the lower portion of the General Bands 10 through 80 Meters. With special Novice operations on June 16, July 15, and August 18, and Extra operations during the Cleveland Hamfest, September 23rd.

QSL card's picturing the U.S.S. COD and Noars station will be sent out confirming all contacts, a special 8 x 11 certificate will be available upon request with QSL confirming the two way contact and $1.00 for handling and postage. Send all QSL's to WD8RZG.

The U.S.S. COD is on permanent display as a War Memorial to honor the men of the Silent Service, located at the port of Cleveland between East 9th street pier and Burke Lakefront Airport.

Guided tours of the submarine by WW II Sub Vets are given daily. So come on down for a historic visit into the past for an adventure to remember.

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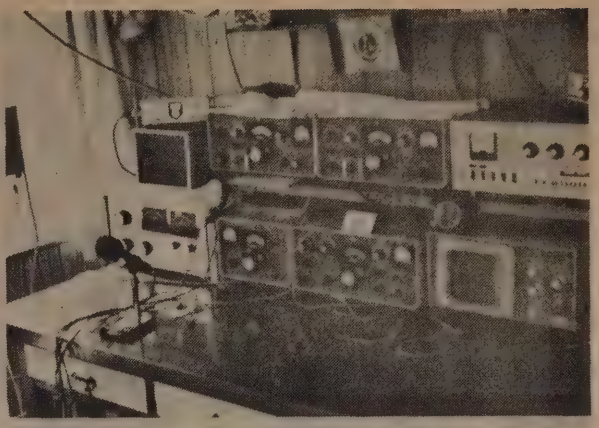

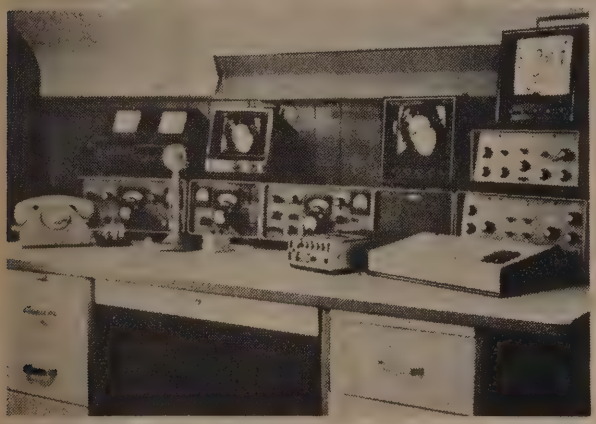

Slow-scan television has universal appeal. Starting from the upper left and going clockwise you can see Andre Balout, F6AXT, of Paris, at the microphone of his station which includes a homebrew SSTV monitor. The photograph was furnished by Andre's mother, F6AYF. Next is the well equipped station of K. Sasaki, JA7FS, of Fukushima, Japan. His station puts in a fine signal and good SSTV pictures into the United States. At the bottom right, John Woodruff of Durham, New Hampshire, watches a CQ from G3WW. John has been a "short-wave viewer" for many years, and likes to watch the SSTV scene on his *Robot* monitor, or on a recently acquired *Robot* model 300 scan converter. In the last photograph, a caricature of W2DD watches over the equipment as Bill mans the camera to take a shot of his SSTV hamshack.

THANKS
November 1977 HRH

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Robot Research Model 400

MOVE OVER COCO... Here Comes Cheap SSTV For The Commodore 64!

Richard Kenney W8MBD Releases New Software At Dayton 84 hamvention

USATVS Member Richard Kinney W8MBD opened the market for new Computer SSTV'ers in late 1983 with his "interfaceless" software program for the popular Radio Shack Color computer called "SLOSCAN". Well over 100 TRS80C buffs are "seeing" SSTV pictures for the first time with no expensive converter or demodulator for under $30.00. It's been no secret that W8MBD has been additionally working on a similar version program for Commodore 64 owners. Pictures for C64 owners are very similar in quality to those of the CoCo Sloscan 1.1 Software described in the "A5" November 1983 Vol. 13 #11 issue. Dayton 84 saw Dick working at the PUBLIC DOMAIN SOFTWARE Booth #386 proudly displaying his new Com 64 SSTV 1 and SSTV 2 programs. Here is a description of what these unique programs feature; COM 64 SSTV 1 and 2 are designed for low cost SSTV viewing and simple operation. They receive U.S. standard 8 second B&W SSTV generated pictures with automatic vert. and horiz. sync, full screen display, and with no special video display adapter required allowing you to use your present TV or monitor. COM 64 SSTV programs connects via USER I/O port-no internal modifications to computer and are powered by computer-no extra supplies needed.

Your choice of two

COM 64 SSTV 1 and 2 are a low cost way to "see" what's on the air. The SSTV 1 Interface can be built in an evening with parts cost under $8.00!! UP-GRADE to SSTV 2 when you want more resolution.

Specifications

These machine language programs provide you with a low cost capability to view amateur radio slowscan television (SSTV) using your Commodore-64. SSTV uses frequency modulated audio tones (1200hz=sync, 1500=black, 2300=white) to produce pictures at a slow rate (8 seconds/120 line picture frame). These programs and asociated interfaces analyze the received audio SSTV tones and convert them into the necessary sync data and gray scale information to "paint" a SSTV picture on your Commodore-64 display. In both SSTV1 and SSTV2, the 160x200 bit mapped multicolor mode of the Commodore-64 is used (the received SSTV 120 line image is reprocessed to 200 vertical lines to fill the display). As this mode permits only 4 levels of gray to be displayed, the software provides additional grey scale display through the use of complex dithering (alternate dot) techniques. The grey scale produced by SSTV1 has about 8 grey levels with "low resolution" quality. SSTV2 provides more than 12 grey levels. Horizontal resolution of the programs are different due to the different SSTV demodulation techniques employed.

SSTV-1

SSTV 1 uses a very simple interface (1 resistor, 1 capacitor, 1 I.C.) which limits and converts the incoming audio into a logic level for the computer. The processes of sync detection and grey scale determination are performed by the Commodore-64 computer under control of the SSTV1 software. The horizontal resolution of the SSTV1 program varies slightly depending on the grey level being displayed. The horizontal resolution is approximately 80/line or better, however the overall image resolution is limited by the characteristics of the software sync detector and limited grey scale capabilities.

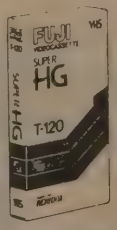
SSTV-2

SSTV 2 uses a "full" demodulator interface which provides improved image resolution over that of SSTV1. SSTV2 has about twice the resolution of SSTV1. This improvement is due to; (1) better sync performance, (2) "full" signal demodulation, and (3) higher number of grey shades displayed. SSTV2 requires the use of a "full" interface which will cost about $30.00 to build. The SSTV2 interface contains both dedicated sync and demodulator circuits. Alignment and test directions are included in the documentation.

How to obtain SSTV-1 and 2

Quality circuit boards and parts kits might become available thru RTM CIRCUIT BOARDS, (See A5 Ad), 285 Elm Street, Van Horne, Iowa 52346. Write your request to the attention of Robert Wilson.

As with the SLOSCAN 1.1 and COCORTTY 1.0 for the TRS80C Color Computer, SSTV 1 & 2 for the COMMODORE 64 Computer is available thru QCD MARKETING SERVICES (A Division of QCD Publications, Inc.), P.O. Box H, Lowden, Iowa 52255. Retail price for both SSTV-1 and SSTV-2 "receive only" programs for the COMMODORE 64 is just $24.95. Allow 2-3 weeks for delivery. The author Richard Kinney W8MBD can be found on most Saturdays on the 20 Meter Sunday COCO SSTV NET at 14.230 Mhz. conducted by NJ4E at 2 pm. EDT. "Congratulations Dick on your successful accomplishments with both the TRS80C and COM64 Personal Computers! Now get to work on some cheap transmit capability as well! -A5



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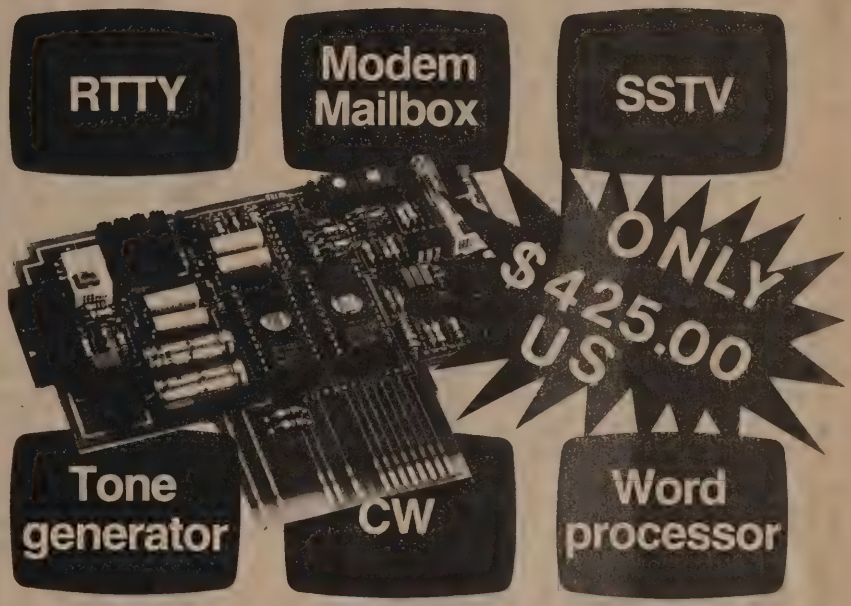

The ultimate communications interface!

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ComputerWorld's COM-IN 64 communications interface turns your Commodore 64 Personal Computer into an advanced (radio)communications terminal for BAUDOT, MORSE, ASCII, SSTV, Word-processor, Modem and Tone generator.

Plug in the interface, switch on your Commodore and the system is in operation! Over sixty commands are recognised by the COM-IN 64 program to ensure maximum operation convenience.

Major features of the COM-IN 64 program:

- Written in fast and efficient 6502 machine language.
- Baudrates 45, 50, 75, 110 and 300, each adjustable with fine tuning system.
- Maximum Baudrate approx. 1500 in word processing mode.
- Fully autom. Morse speed, 5 to 99 words per minute.
- Split screen. Compose and edit text while receiving.
- 12 K byte text buffer in memory.
- Three active cursors. Receive, transmit and keyboard.
- Store received and transmitted messages on diskette.
- Disk-based mailbox system.
- User definable WRU.
- Create brag tapes on disk or cassette files.
- Transmit disk or cassette files.
- Hard copy available with a printer.
- Automatic word-wrapped carriage return and line feed. On transmit selectable.
- Unshift on space selectable.
- Seven 80 character message buffers with display, print and write options.
- Load and save message buffers on tape or disk.
- Software controlled CW sidetone, ASCII and BAUDOT AFSK.
- 14 tones selectable for adjustment purposes. (4 for modem adjusting).
- Sync idle, slow mode and word by word mode.
- Auto transmit receive switch for telephone line.
- Replay received message with resend command.
- Four CW identification options.
- CW FSK identification for RTTY.
- RYRY generator (baudot RTTY test signal).
- Quick brown fox generator.
- Several callsign generators available.
- Received text word-wrapped at end of screen lines.
- Keyboard selectable normal reverse tones for all modes except for CW transmit mode.
- Direct mode for fast break-in operations.
- 24 hour real time clock displayed on status line. (CIA TOD clock with automatic 50/60 cps selection).
- Send current time with QTR command.
- Random mode sends 5 character groups for morse practice.
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- Ignore carriage return on receive option.
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- Page mode allows reception of RTTY pictures etc.
- Byte mode allows transmitting program files.
- Modem mode with automatic Bell/CCITT selection.

Further details:

ComputerWorld's COM-IN 64 program is supplied with self supported power supply, cables and connectors. In the extensive user manual you'll find the complete schematic and 2 program listings for QHT locator and LOGBOOK.

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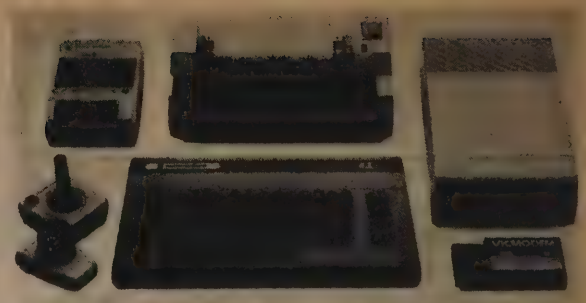


"A5" has strongly supported the popular TRS80C Color Computer for use in Specialized Communications. Software and interfaces for the Commodore 64 and VIC 20 are now coming out at a rapid fire pace. Enclosed is information regarding perhaps the most complete COMMODORE 64 Amateur Radio Communications Computer package to hit the market! It is so new, it wasn't even shown at the 1984 Dayton Hamvention. COM-IN 64 is designed by Rob Maris of Computer World in Holland (C) 1983. "A5" COMMODORE 64 fans standby-your day has finally arrived! -WB8QCD

What does it do?

This communications interface COM-IN 64 turns your Commodore 64 microcomputer into an advanced radio communications terminal for BAUDOT, MORSE, ASCII and SSTV, in addition to MODEM, PROGRAM TRANSMIT and WORDPROCESSING capabilities. All you have to do is plug in and power up the printboard, switch on your commodore and the system is in operation! Over sixty commands are recognized by the program to give maximum operation convenience and flexibility. Cassette or disk drives for data storage are supported by the program, as well as optional hard copy with a printer.

"COM-IN 64"

MAJOR FEATURES: COM-IN 64 is written in fast and efficient 6502 machine language. Baudrates are 45, 50, 75, 110 and 300, each adjustable with fine tuning system. Maximum Baudrate is approx. 1500 in word processing mode. The Morse speed is 5 to 99 words per minute. COM-IN 64 has a split screen. Compose and edit text while receiving. There is a 12 K byte text buffer in memory. There are three active cursors. Receive, transmit and Keyboard. You can store received and transmitted messages on diskette. There is a Disk-based mailbox system, and a User definable WRU. You can create brag tapes on disk or cassette files, or transmit disk or cassette files. COM-IN 64 has a hard copy available with a printer. It has automatic word-wrapped carriage return and line feed, On transmit selectable and Unshift on space selectable. It also has seven 80 character message buffers with display, print and write options. You can load and save message buffers on tape or disk. COM-IN 64 has software controlled CW sidetone, ASCII and BAUDOT AFSK. There are 14 tones selectable for adjustment purposes, (4 for modem adjusting). There is a Synch idle, slow mode and word by word mode. Also Auto transmit-receive switch for PTT line and Replay received message with resend command. COM-IN 64 also has Four CW identification options. CW FSK identification for RTTY and RYRY generator (baudot RTTY test signal). There is a Quick brown fox generator. Several callsign generators are available. Also a Received text word-wrapped at end of screen lines. There is a Keyboard selectable normal-reverse tones for all modes except for CW transmit mode. Plus a Direct mode for fast break-in operations. COM-IN has a 24 hour real time clock displayed on status line. (CIA TOD clock with automatic 50/60 cps selection). It sends current time with QTR command. The Random mode sends 5 character groups for morse practice. Loop mode for printer adjustments or beaconlike operation, Keyer mode allows connection of manual Morse paddle are also in the COM-IN 64. It has a unique large TIMES SQUARE character display option. Just ignore carriage return on receive option. It has a User definable switch facility. Page mode allows reception of RTTY pictures etc., Byte mode allows transmitting program files. and the Modem mode has automatic Bell/CCITT selection.

MORE DETAILED INFORMATION: (CALLSIGN ENTRY) The users callsign is entered once, at the beginning of the program. The callsign will be added automatically to the call function keys.

(DISK/CASSETTE I/O selection) The program checks the IEEE bus to determine whether the disk is present. If not, cassette #1 is assumed to be the I/O device.

MESSAGE BUFFERS- The seven 80 character message buffers may be loaded or saved from the I/O device i.e. disk or tape, selected on the entry of the program under a specific file name of maximum 16 characters. Three modes are available; display write and print buffer. Display prints the selected buffer in reverse video on the second last two lines, write allows the user to store up to 80 characters in the selected buffer and print places the selected buffer in the transit screen.

SCREEN DISPLAY- The screen is split into two sections by a status line. Received text is displayed above the status line and the lower half is a window of the 12 K byte transmit text buffer. Both sections are scrolled independently. The status line in the middle shows speed, mode, time, current options selected, etc. The left part of the botton screen line is the output line and displays the actual transmitted text in reserve video. This line is shifted right to left as each character is sent . On the right part several letters may indicate submodes of the program.

MAILBOX AND WRU BUFFER- The program can compare incoming text with a WRU (Who aRe yoU) buffer, and take action if match is found. Command keys controls the recognition process and may be used separately or combined. If alert mode is selected the screen will flash twice and an alarm will be sounded whenever incoming text matches the contents of the WRU buffer. If response mode is selected the users callsign and currrent time is printed, an output file is opened to the disk with a name made up of the word MAILBOX and the current time. After a pre existing instruction file

named RESPONSE has been sent the incoming bulletin will be stored on diskette.

CURSORS- Three cursors are used, the keyboard, the transmit and the receive cursor. The keyboard cursor shows where the next character entered from the keyboard will be displayed and the transmit cursor points to the current character being transmitted. Transmission starts at the left top corner and stops when the transmit cursor covers the keyboard cursor. Both cursors appear in the lower half of the screen. In the upper half of the screen the non flashing receive cursor shows where the next character will be printed. This cursor shows an inverted 1 (one) if RTTY/CW input is high and an inverted 0 (zero) if the RTTY/CW input is low. This is used to adjust the optimal squelch setting and to determine the signal polarity.

PRINTER ON/OFF- If the printer is selected, received text will occur on the printer as well as on screen. (SSTV)- In SSTV mode the user may receive high resolution pictures in a frame 180 dots horz. by 20 dots vert. in a four-step greyscale. Message buffers can be used to respond with text to the other station in SSTV mode. (SYNCH IDLE)- Sends "fillers", only in ASCII and BAUDOT, when the transmit text has been exhausted and the program is waiting for keyboard input. It also assists the receiver to stay in synchronization. (UNSHIFT ON SPACE)- In BAUDOT the proram will switch automatically into letters case after each received space character, to avoid printing garble if a letters shift is missed. (IGNORE RETURNS)- Carriage returns will be transformed into space characters for more efficient use of space on screen or printer. (WORD WRAPPING)- To prevent received words splitting at the end of a screen line, the first space character received after the 38th column is reached will cause the next character to be printed on the following line. (OPEN OUTPUT FILE)- Opens a file on disk with a given name of maxinum 16 characters to store received and transmitted bulletins as a sequential text file. (GET FILE)- Files may be loaded into the transmit buffer down from the place where the transmit cursor resides enabling composing text by chaining. (MODES and MODE CHANGE)- Modes can be changed by pressing one of the function keys (F-keys) or entering a control function. F-keys switch the program into direct mode, fast mode, receive or transmit mode, while control keys are selecting other modes. (DIRECT MODE)- This mode bypasses the text stored in the transmit buffer and sends directly from the keyboard. Direct is also available when receiving to provide instant break operation, allowing the user to reply without disturbing the transmit text. (ADJUST MODE)- This mode generated eleven selectable frequencies necessary for tuning the filter on the interface board. Because of the LED indicators, no further equipment for proper tuning is required. (FAST MODE)- Fast mode switches the baudrate to maximum speed. When the system is in use as a wordprocessor, the output to the printer will not be slowed down by a low baudrate in this mode. (MAGNIFY MODE)- This mode displays received text in a 7 x 9 dot matrix format, giving characters four times as wide in a shifted Times Square fashion. There is no cursor and the benefits of a split screen operation are traded for a even at some distance, highly visible display. (SLOW MODE)- This mode allows the user to build up a reservoir of transmit text. The baudrate at which individual characters are sent remains the same but a delay is inserted between the characters. (PAGE MODE)- When receiving RTTY pictures or long bulletins, word wrapped split screen printing may not be desirable. The received text will now be printed over the entire screen with normal scrolling. (WORD WRAP MODE)- Generates a carriage return and line feed after sending 60 of 70 characters instead of a space character. (WORD GROUP MODE)- This mode causes output to be grouped in bursts of words. No output will occur until the space key is pressed. (BYTE MODE)- This mode allows the user to transmit programs. Each byte, on loading poked directly into the transmit screen, will be unpacked in two nybbles ranging fron A to P to enable transmitting in Baudot.

And There's More!

OTHER FACILITIES IN THIS PROGRAM ARE: Wordprocessing facilities as cursor controls, full screen text editor, insert line, clear line, etc. Wordprocessing facilities are available in all modes, but only ASCII separates upper and lower case. There is a User definable switch. It also has a manual TX/RX switch or automatic return to RX mode. Plus the ability to load and save random textfiles. You can also send identity (CQ call) 1 to 9 times (selectable) and return to TX mode function. There is a Normal and Inverse mark/space switch. Also a Set time switch and print time to the transmit text buffer (QTR). Disk I/O facilities as read/write file, read directory, read error channel are also included in this program. In addition there is a Keyer mode to connect a side to side paddle Keyer.

Technical Information

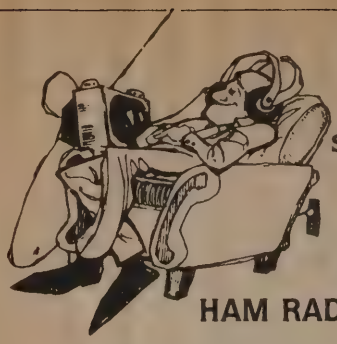
TECHNICAL DATA- There are up to 300 baud speeds for receiving and transmitting and approx. 1500 baud speeds for disk and printer I/O. The transmit AFSK frequencies selectables are; 800Hz. CW frequency, 980-1180Hz. modem transmit frequency, 1650-1850Hz modem receive frequency, 1200-2400Hz. Kansas city standard tones (for ASCII), 1275-1445Hz RTTY frequency, 1275-1925Hz. RTTY frequency, 2125-2295Hz. RTTY frequency, 2125-2550Hz. RTTY frequency, and 2125-2975Hz. RTTY frequency. Also there in a input impedance of 50 Kohn and a bandwidth CW of 60 c.s. The min. input amplitute RTTY/CW is 10 mV. It has a Optocoupled computer interface and LED indicators for mark, space and CW tones. The external power supply is 2 x 9 V. (18 V center tapped) 100 mA. (not supplied) and an input 220 or 110 V, 50 or 60 c/s.

Where to Purchase COM-IN 64

The exclusive distributor for North America is Abe Mackay VE6AMU Ventura Mechanical Ltd., 3103 Breen Rd. N.W. Calgary, Alberta, Canada T2L 1S2. All Canadian and other foreign customers should contact VE6AMU directly.

In the U.S.A.

The U.S.A. dealer is Mike Stone WB0QCD c/o International Sales and Marketing (A Division of QCD Publications, Inc.) 804 Jefferson Ave. Lowden, Iowa 52255. Deliveries on the COM-IN 64 are anticipated by June 30th. Retail price on the COM-IN 64 is $425.00 per unit with a $10.00 shipping/handling charge. Cash, certified checks or money orders, Master Charge or Visa (4% Service charge added) are accepted. Send SASE for free brochure information.



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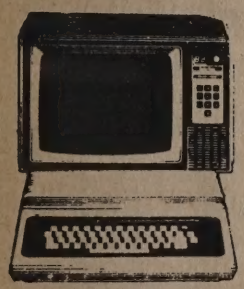

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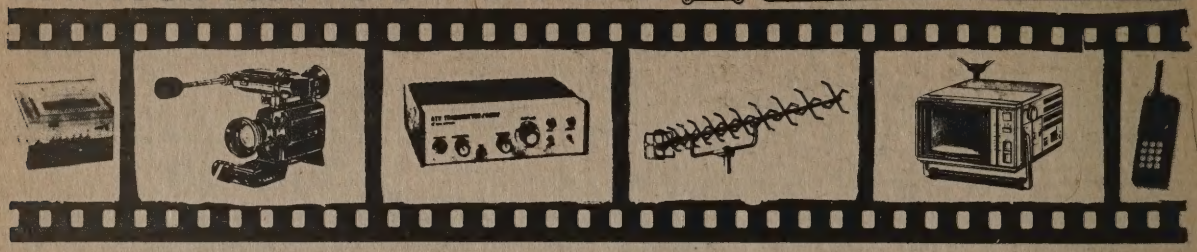

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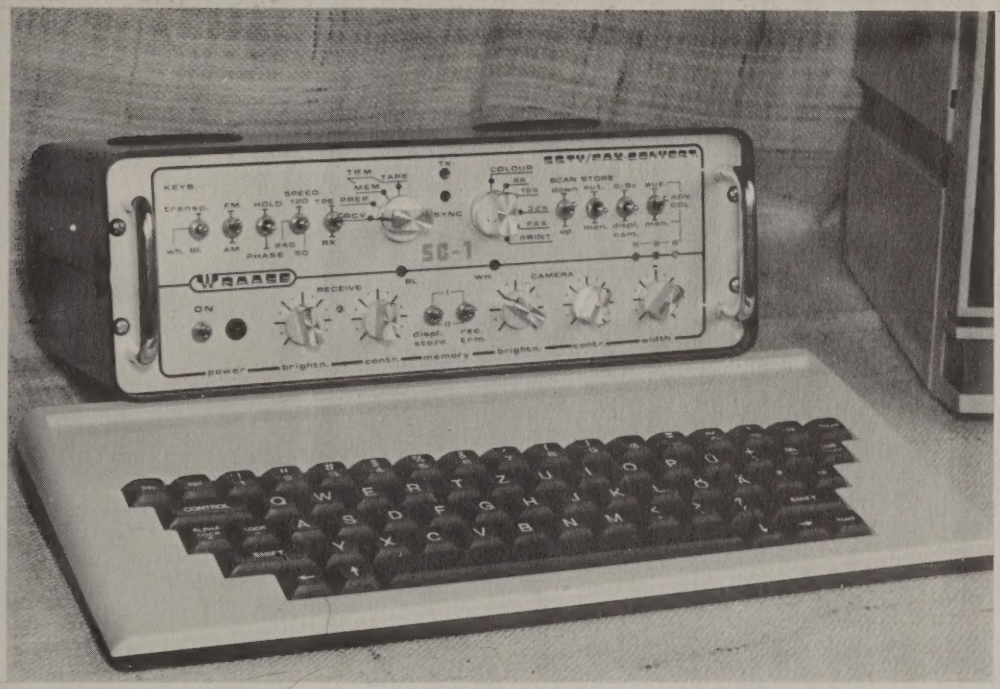

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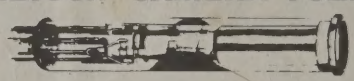

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